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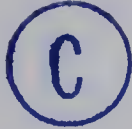
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TEAM TEACHING IN WESTERN CANADA

by



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A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Team Teaching in Western Canada," submitted by Kenneth L. Ward in partial fulfillment of the requirements for the degree of Master of Education.

ABSTRACT

The purposes of this study were (1) to determine the extent of the use of teaching teams in the four western Canadian provinces and to describe the structural and situational characteristics of the teaching teams, (2) to determine whether certain selected principal and situational variables and several indices of innovativeness were predictive of the nature of the team practices adopted.

One hundred and twelve principals, whose schools had been identified by superintendents as being schools in which teaching teams were employed, were mailed omnibus-type questionnaires designed to elicit information relevant to the research purposes. The eventual sample was reduced to 78 principals, or 70 per cent of those surveyed, who identified 215 separate teaching teams.

Data relevant to a description of the status of team teaching in western Canada were tabulated. The data indicated that the "typical" teaching team in western Canada (a sketch based on strictly nominal measures of central tendency and thus of value only in terms of an overview of the general trend) could be described as a single-subject, single-grade, two-(or three) teacher team involved in the instruction of fifty to one hundred pupils, at the secondary level, in the curriculum area subsuming the "humanities".

Predictor variables selected for use in the prediction of time and extent of adoption of team teaching included seven principal variables or characteristics derived from recent research on the adoption and diffusion of innovation. Predictor variables derived from two scales validated in other research--the Professional Role Orientation Scale and the Self-Designating Opinion Leadership Scale--although not significant in the prediction of time of adoption individually, were significant in combination when subjected to a step-wise regression analysis. There were no significant relationships between the predictors and the criterion of extent of adoption in either the correlational or step-wise regression analyses results.

Correlational and step-wise regression analyses were used to determine whether four aspects of "professionalism" (sub-scale scores of the P.R.O. Scale noted above) on the part of the principal and two indices of innovativeness (time and extent of adoption of team teaching) were predictive of the type of team teaching adopted. The criteria selected in this case were the degrees of autonomy, internal structure, and coordination associated with the teaching teams.

Two aspects of principal professionalism--orientation toward professional, decision-making autonomy, and orientation toward pupils--were significant in the prediction of

the degree of team autonomy. Combined with the two "adoption" predictors, they remained significant.

Time of adoption (or team "age") was the only predictor significant in the prediction of team structure. In combination with the other predictors, however, a value of R^2 was found which was significant at the .0003 level. As teams "age" they become more highly structured.

The contribution of the variables to the prediction of team coordination was negligible in both correlational and regression analyses.

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

I. INTRODUCTION

The antecedents of team teaching, we are told, are lost in the past(11,p.324). The origin of the connotation usually attached to the term today, however, can be traced back through a relatively short period of time to the White House Conference on Education in 1955. Several major educational problems had developed in the United States following the Second World War. First, there was a tremendous shortage of qualified teachers: it has been estimated that by 1955 there were 45,000 fewer teachers than were needed to staff the classrooms in the United States(2, p.2). As might be expected, the teacher shortage resulted in the initiation of emergency measures to meet the demand for teachers; and this, in turn, jeopardized the maintenance of teacher standards.

A second major educational problem derived from the coupling of knowledge and population explosions with the increasing automation and urbanization which have characterized the past several decades. These forces have necessitated a re-examination of educational objectives and a new approach to curriculum construction. The vast extension of knowledge, in particular, makes obsolete the traditional emphasis on the teaching of facts. Massing notes that course content must be

subordinated to the approach used in teaching, for "what-ever is taught may be out of date before the student has an opportunity to use it(6, p.22)."

The outcome of the increasing attention educators were paying to the changing environment was the recognition that students must be prepared for a life of continuous learning. The consensus of most educators was that the accomplishment of such a goal would require a new emphasis on the development in the pupil of individual creativity and responsible for learning. It was also obvious that such an emphasis could not be realized within the rigid horizontal organization of the schools. Butterwick suggests that:

The main reason for the development of this concept of team teaching was the frequent complaint that the secondary school has little concern for the individual pupil(1, p.141).

The stage was set for the emergence of leadership in the quest for answers to the problems besetting education.

The leadership took the form of studies on staff utilization--studies which were given impetus by the White House Conference on Education. In 1956 the National Association of Secondary School Principals (N.A.S.S.P.) established a Commission on the Experimental Study of Utilization of Staff in the Secondary School. The investigation received substantial financial assistance from both the Ford Foundation and the Fund for the Advancement of Education. The primary purpose of the Commission was to experiment with methods

designed to maintain teacher standards in the wake of the flood of less qualified teachers. Wigderson adds that:

Concurrently the School and University Program for Research and Development (S.U.P.R.A.D.) a partnership of Harvard's Graduate School of Education and three Massachusetts' school systems, began to develop a team approach(11, p.325).

The experimentation took two paths: the introduction of new and different types of non-professional personnel; and the reorganization of professional staff to use the varied talents and energies of the teachers more efficiently. The National Education Association notes that "teacher aides are an example of the first type of experimentation, and team teaching of the second(7)." The two are generally combined, however, in most definitions of team teaching. Trump provides what is probably the most all-encompassing definition of the term:

...an arrangement whereby two or more teachers and their aides, in order to take advantage of their respective competencies, plan, instruct and evaluate, in one or more subject areas, a group of elementary or secondary students equivalent in size to two or more conventional classes, making use of a variety of technical aids to teaching and learning in large-group instruction, small-group discussion, and independent study(10, p.327).

Trump headed the Commission set up by the N.A.S.S.P. and his is probably the basic model on which most team teaching practices are patterned. There are, however, many variations in practice, and few, if any, of the reported approaches are identical. Trump's definition, and much recent research--

particularly in the United States--do not provide all the answers to the problems noted earlier, but they do tend to rectify, to some extent, the situation which Cunningham reports as having existed only a few years ago:

In spite of the widespread attention to and experimentation with team teaching, however, no adequate definition or description of what is involved has been made available(4)."

Canada has lagged behind the United States insofar as experimentation and investigation involving team teaching are concerned. In many ways, Cunningham's complaint is applicable to current team teaching projects in the Canadian setting. Little has been done in Canadian research to determine the extent to which the team teaching innovation has been adopted in Canadian schools, or to determine the types of team teaching practices in use.

II. THE PROBLEM

Statement of the Problem

The purposes of this study were (1) to determine the extent of the use of teaching teams in the four western Canadian provinces, and (2) to survey and analyze selected characteristics of (a) the principals in whose schools teaching teams have been adopted, (b) the settings in which the teams are employed, and (c) the teaching teams themselves.

Sub-Problems

The study sought answers for the following questions.

1. In how many schools in western Canada, in what subject-matter areas, and at what grade levels are teaching teams in use?
2. What are the structural characteristics of the teaching teams being used in western Canadian schools?
3. What is the nature of team practices in western Canadian schools in terms of the degrees of autonomy, internal authority structure, and coordination within the team teaching setting?
4. What characteristics of the school principal and the school setting predict (a) the time, and (b) the extent of adoption of team teaching practices?
5. What characteristics of the principal, the time of adoption of team teaching, and the extent of adoption of team teaching predict the nature of the team adopted (i.e. in terms of autonomy, structure, etc.)?

Importance of the Study

A great deal of descriptive information has accumulated concerning team teaching. Most of this information has been disseminated in the United States, and most of it deals with American schools. These studies, says Massing, "are characterized by almost unlimited budgets" and "employ the best authorities." He adds that, as a result, "we cannot afford to ignore the sign posts which they have set out (6, p.22)."

Few educators would deny the tremendous impact of all things American on Canada. Yet only a very few studies have attempted to determine the extent to which team teaching has been adopted or is being contemplated in Canadian schools; and of those which have, most have not ventured beyond a provincial setting. One study which did attempt to judge the extent of team teaching in Canada asserts that interest in the innovation is growing rapidly in this country:

A number of articles in Canadian journals during the past two or three years have discussed its merits and generally concluded that the techniques might be profitably adapted to Canadian conditions (2, p.2).

The study cited above was conducted in 1964 by the Research and Information Division of the Canadian Education Association. The sample selected consisted of 65 major school boards across the country, and of these, only fifteen indicated that team teaching trials were in progress or were planned for the near future. Significantly, only four of the fifteen systems which indicated interest were located in western Canada. And of these, only two--Regina and Calgary Separate--reported that try-outs had been in effect prior to the 1963-64 school year. The investigators concluded that the Canadian try-outs had been too few, too recent, and too modest to provide any objective evidence with which to evaluate the practice.

The rapid rate of diffusion of team teaching in the

United States--Wigderson reports an increase from 300 try-outs in 1960 to 3000 in 1963(11, p.324)--coupled with the fact that no extensive survey has been completed in Canada, seemed to justify the launching of a team teaching investigation which was wide enough in scope to describe adequately the practice as it exists in a major section of this country. It was one purpose of this study to investigate the status quo of team teaching in western Canada.

The second major purpose of this study was to investigate the adoption process for team teaching. The study focussed on the characteristics of adopter principals and on the characteristics of the teams employed and the relationships between these characteristics and the time and extent of adoption of team teaching. As well, an investigation was carried out concerning the nature of the team adopted and the factors associated with the adoption of particular types of team practices. By its exploratory nature, the study provided suggestions for areas in which further research would be useful, particularly as concerns the role of the principal in the adoption process, the evolutionary nature of the teaching team, and the relationships between innovation and "climate" or the decision making structure within the school.

A study of this nature, by providing a descriptive analysis of team teaching practices and adoption processes, provides a nexus which serves to clarify the team concept as

practiced in western Canada.

Finally, it should be stressed that this study was in no way designed to evaluate team teaching. Rather, it was the intent of this investigation to describe what exists insofar as team teaching is concerned in western Canada. As Heathers points out:

Attempts to evaluate team teaching at this time are premature unless the purpose is to obtain very general and tentative information about the workability of plans...and outcomes (5, p.307).

He adds that even five years is too short a period for a school system to develop a team teaching program to a point where its potential outcomes can be realized.

III. DEFINITIONS OF TERMS

Team Teaching

Team teaching is defined substantively for the purposes of this study by Shaplin and Olds:

Team teaching is a type of instructional organization, involving teaching personnel and the students assigned to them, in which two or more teachers are given responsibility, working together, for all or a significant part of the instruction of the same group of students(8, p.15).

Operationally, the term is defined by the extent to which team teaching exists in any school as perceived by the principal.

Structural Characteristics

This term refers to the special requirements that any

school has for the organizations that are a part of it. Olds notes that "...in virtually all cases where a team is introduced into a school system, it is fitted into the existing conditions of that system(8, p.106)." He adds that these conditions "...represent external conditions that are imposed upon the teaching team and that limit the team in certain ways(8, p.106)." Operationally, the term is defined as the principal's estimate of the extent of gradedness and departmentalization in his school, the size of the school, the type and extent of human and financial resources, and specific goals and plans.

Autonomy

This term refers to the principal's estimate of the degree of autonomy granted to teaching teams operating in his school. The estimate is expressed in degrees: none, little, moderate, considerable, or total.

Authority Structure and Degree of Specialization

This term refers to the principal's estimate of the degree of vertical and horizontal authority structure and the degree of hierarchy in administrative structure in his school. (degrees: none, little, moderate, considerable and total).

Coordination

This term refers to the principal's estimate of the degree of procedural coordination (concern for the organiza-

tion of the team as a social system), and to the principal's estimate of the degree of substantive coordination (concern for the task). (degrees: none, little, moderate, considerable and total).

Opinion Leadership

This term refers to the principal's score on the modified Self-Designating Opinion Leadership Scale(9, pp.230-31).

Professionalism

This term refers to the principal's score on the Professional Role Orientation Scale(3).

Origin

This term refers to the school system for which the principal worked immediately prior to his present system. (e.g. the question involving this term was designed to determine whether the principal was promoted from within his present school system or whether he was hired from outside his present school system).

IV. SUMMARY AND ORGANIZATION OF THE REMAINDER OF THE THESIS

The purpose of this chapter was to outline the problem which initiated this research, its importance, and the definitions of the terms used. The remainder of the thesis will be organized in the following way:

Chapter II	Survey of the Literature and Related Research
Chapter III	Research Methodology
Chapter IV	Team Teaching in Western Canada
Chapter V	Principal, Situation, and Team Characteristics in Team-Teaching Schools
Chapter VI	Prediction of Adoption of Team Teaching
Chapter VII	Summary, Conclusions, and Suggestions for Further Research

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CHAPTER II

A SURVEY OF THE LITERATURE AND RELATED RESEARCH

I. INTRODUCTION

Selltiz suggests several ways in which a survey of the literature, such as the one undertaken here, can facilitate the investigation of a problem(31, p.53). First, such a review may uncover hypotheses that may lead to further investigation: one can then build on the work already done by others. Second, in a study of an area in which hypotheses have not already been formulated, the available material may suggest hypotheses that can be derived from it. Finally, a review of the studies in areas not immediately related to the particular area of research can be a fruitful means of developing hypotheses in that one can attempt to apply, to one's own area, concepts and theories developed in a completely different research context.

Ginther, writing in a preface to a recent report on a team teaching project, outlines two major short-comings in the literature on team teaching which were noted by investigators prior to the initiation of the project:

1. Few, if any, team teaching projects have shown clear-cut evidence concerning the effectiveness of team teaching as compared to the standard classroom situation; and

2. In even fewer cases have actual instructional materials and situations been described in a way that would make possible the replication of a given experiment in team teaching(33, p.1).

"What they found true then," suggests Ginther, "seems still to hold(33, p.1)." Shaplin, too, warns the investigator of the pitfalls encountered in any survey of the literature on team teaching:

...it is hardly an exaggeration to say that there are as many different types of team teaching as there are different school systems that have undertaken projects. This lack of conformity to any established norms would not be a matter of such grave concern if it were not for an accompanying attitude...that uniqueness is a desirable end in itself(32, p.5).

The investigation of the extent of team teaching in western Canada is further complicated by a consideration of recent research findings on the diffusion of innovations. One might argue that team teaching cannot be classed as a "pure" innovation to the extent that it may not satisfy all the criteria usually included in the definition of the term innovation: "a new practice whose acceptance can easily be discovered, recently introduced and available for adoption by all members of the population(16, p.92)." Conversely, team teaching does satisfy Mile's general definition of an innovation insofar as it appears to be "...a deliberate, novel, specific change, which is thought to be more efficacious in accomplishing the goals of a system(24, p.40)."

A survey of the relevant literature reveals that the topic can be sub-divided into two rather broad categories:

Teaching Team Classification; and Factors Affecting the Adoption of Team Teaching. The first sub-topic is basic to the unearthing of any meaningful information on the status quo of team teaching in western Canada. The second reveals the applicability of research findings in connection with the diffusion and adoption of innovations to the area of team teaching.

The purpose of this chapter is to examine some of the literature and research on team teaching practices and innovation adoption and diffusion processes. Such a synthesis is a necessary basis for development of hypotheses for the present study.

II. TEACHING TEAMS: CLASSIFICATION

"The literature on team teaching does not give any rationale for the choice of the word team(32, p.59)."

Shaplin's statement demonstrates the major problem inherent in the task of classifying teaching teams. It may be observed that the term, "team", simultaneously evokes images of cooperation, external control, in-group cohesiveness, and loyalty. But Shaplin looks to sociological and psychological literature and to other professional groups in his attempt to ascertain the meaning of the word "team" as it is used in education. He notes that Dubin(15, p.104) distinguishes three types of teams in terms of the degree of initiative left to members of the group in executing their tasks: team

group; task group; and technological group. Shaplin concludes that teaching teams may be classified in either of Dubin's first two groups, but only rarely in the third--a group which is, in effect, "a kind of human machine(32, p.62)."

Shaplin also cites the work of Klaus and Glaser who compare teams and small groups and who note that the two differ chiefly in that "Teams...are usually well organized, highly structured and have relatively formal operating procedures...(20, p.2)." This definition, however, is probably too rigid to be applicable to teaching teams since the definition was derived for a specific research purpose---the training of task-oriented groups(32, p.62).

Shaplin concludes his search for a meaning for the noun in "teaching team" by drawing parallels between teaching teams and medical teams--particularly nursing teams. He suggests that it is very likely that the original impetus for the formation of teaching teams "...came from the medical profession rather than from industry or from previous efforts within teaching(32, p.63)." With respect to nursing teams, he quotes Newcomb to demonstrate the nursing profession's connotation of the term:

A concept of the team as here described is a concept of leadership, or organization, or partnership, of group response to goals, of integrated action, of in-service education, of supervision(26, p.vii).

Beggs, taking a different approach to the typing of teaching teams suggests that teams can be classified accord-

ing to the following types: (1) the single discipline team; (2) the interdisciplinary block; (3) the school-within-school team(4, p.17). The advantage of the first is the ease with which it can be employed in a conventional setting; the second allows for more flexibility in grouping and time-tabling; the third is both more flexible and less impersonal than the other two. Begg's classification system fails to take into consideration the degree of autonomy granted to the teaching teams or the hierarchical structure within the team itself.

Cunningham, like Dubin, sees the major criteria for categorizing teams or groups as that of authority structure (13, pp.1-4). He suggests four categories of teaching teams: (1) Team-Leader type; (2) Associate-Team type; (3) Master Teacher-Beginning Teacher type; and (4) Coordinated-Team type. The first is distinguished by the fact that it has a designated team leader and a hierarchical authority structure. Bahner favors this type of team and notes that although it is one of the more controversial issues of team teaching, "...there are weighty arguments in favor of a hierarchical form of team organization(3, p.337)." Chase, too, advocates the team-leader type of teaching team. He predicts that in the schools of the future, "staff organization will provide for the formation of teaching teams under the general direction of a coordinating teacher of the highest professional competence(10, p.166)."

Cunningham's "Associate-team type" differs from the

Team-Leader type only insofar as it has no designated team leader and generally is smaller. Adams, who advocates the non-hierarchical team, points out that such teams are "partnerships" in which all teachers have equal status and authority (1, p.203). He suggests that in this type of team, leadership will emerge as it is earned by the teachers through "their effectiveness, their contributions, their experience, their knowledge, their interests, or their personalities(1, p.203)." Cunningham labels the leadership function in the Associate-team type as "situational".

Cunningham's suggested third category for teaching teams--the Master Teacher-Beginning Teacher type--could be either a Team-Leader type or an Associate type since it is not based on authority structure but rather on an inservice education function. MacKay takes the rationale a step further and proposes that team teaching has special merit as a vehicle for the professionalization of the whole teaching staff--not merely the training of the beginning teacher(22, p.6). He bases the observation on Argyris' views of individual-organizational conflict and sees in team teaching a means of providing:

...the setting and the patterns of relationships among staff members which will contribute substantially to the reduction of organizational conflict in Argyris' sense of the term(22, p.6).

The Coordinated type of team, which completes Cunningham's categories, involves joint planning by teachers for large

group instruction, but with each team member retaining responsibility for a single class of conventional size. Andrews has observed that in general, large-group presentations have been adopted more widely than have the other aspects of team teaching--small group discussion and independent study(2, p.123). Thus, it would appear that there is a valid reason for including the Coordinated-team type in a classification system: namely, that the practice does exist. At the same time, however, such a team cannot really be classified as team teaching in Trump's sense of the term(35, p.9). Its most useful feature is that it can be used as a label for teams that cannot be classified according to the degree of hierarchical structure within the team and for practices which are labelled "team teaching" for want of a better term.

The Olds' Taxonomy for Team Teaching

Hemeyer and McGrew, taking an approach similar to Cunningham's, divide teaching teams into two types according to teaching methods: Coordinate teaching--similar to Cunningham's Coordinated Team type; and Associate teaching--characterized by the assignment of large groups of students to teams of teachers(18, p.309). Olds accurately extricates a concept buried in most of the fore-mentioned classificatory schemes when he writes of the work of Hemeyer and McGrew:

The authors seem to make their distinction on the basis of the degree of autonomy which the team possesses. The two types they describe seem to occur at the two extremes of a possible scale of autonomy

with degrees of autonomy which range all the way from coordinate teaching to associate teaching, to use their terms. This is an important distinction and one which Cunningham must have felt when he was describing his coordinate-team type(28, p.102).

Similarly, Ohm contributes to the development of a workable way of talking about team teaching. After investigating various types of teaching teams, he concludes that:

A team can be categorized along a simple to complex continuum depending on the nature and scope of the instructional variables for which it is responsible. The problem of complexity and the limits within which the team will be expected to work need to be considered(27, p.3).

Admitting his debt to others, Olds goes on to develop a taxonomy for team teaching(28, pp.104-105). He sets as his criteria three major areas which a team-teaching taxonomy should attempt to cover. First, it should indicate differences among teaching teams, including those which are likely to occur because of conditions beyond the control of the team. Second, it should indicate and explore areas in which significant similarities among teams exist. And finally, it should indicate lines of development by bringing within its scope as many of the theoretical potentialities of team teaching as possible(28, p.100).

The classification system ultimately developed by Olds embodies the criteria noted above. His taxonomy (reprinted in Appendix B) suggests that teaching teams can be classified on the basis of four major variables: structural requirements of specific situations; autonomy or span of control within

existing structural requirements; authority structure and degree of specialization; and coordination. The development of the instrument used in the present study and based on Olds' Taxonomy is described in detail in Chapter III.

Olds' Taxonomy is not intended to provide a total analytic system for teaching teams: its purpose is to give a broad coverage of the characteristics of the teams. As Olds himself points out: "Only when team teaching is a much more firmly established concept...will an exhaustive classification be possible(10, p.104)."

III. FACTORS AFFECTING THE ADOPTION OF TEAM TEACHING

Much recent research, notably by Carlson, Miles and Rogers, has been concerned with the diffusion and adoption of educational innovations. To the extent that team teaching can be classed as an innovation, and within the bounds set by the fact that this study is basically a descriptive one, the diffusion studies tend to add a new dimension to team teaching research.

Probably the major importance of the recent research into educational innovation, to a study designed to describe the extent of adoption of an innovation in a particular area of the country, is the light such research has shed on factors affecting adoption processes. Specifically, the apparent refutation of the Mort tradition--that the rate of adoption of an educational innovation is proportionate to the level of

expenditure per pupil(9, p.7)--has relevance to this research.

Carlson notes that Mort influenced the entire research area and that although the studies were fairly sophisticated and numerous, they were narrow in scope(9, p.7). As well, the implication implicit in the early diffusion studies-- that the characteristics of chief school officials are not important in explaining the rate of adoption of innovations-- is being challenged by emerging data(9,24,30). This observation, along with the one noted in the preceding paragraph, suggests some very definite directions to follow in the attempt to determine factors affecting the adoption of team teaching in western Canada.

Situational Factors

Team teaching is not the sort of educational innovation that can be introduced into a school on the spur of the moment and still be expected to achieve any degree of success. A number of writers warn against the danger of administrators seizing upon the novelty of the team concept and attempting to implement it without adequate preparation, planning and evaluation in terms of expected outcomes(5,6,7,28,29,32). As well, it is not unusual to find school boards approving additions to schools, or spending large sums on new schools designed to facilitate team teaching, only to find that the provision of structural requirements alone is not sufficient. It would seem that there are certain definite situational

factors necessary to both the initiation and success of team teaching in any particular school. What are they?

Recent research on the rate of adoption of educational innovations demonstrates that human factors are at least as important as monetary ones(9,24,30). Carlson, for instance, found that the rate of adoption of innovations was not significantly correlated with expenditure per child in either of two areas in the United States(9, p.9). Rogers, although finding a high relationship between the financial resources of a school system and its innovativeness, takes care to emphasize that all rich systems are not innovative, nor are all poor systems non-innovative(9, p.60). There are thus very strong indications that monetary considerations are not the most important factors in the adoption of such innovations as team teaching, in spite of Morse's observation that team teaching, properly understood, will cost ten to fifteen per cent more for the operation of the schools(25). Morse's claim is refuted by Trump who takes pains to demonstrate that the costs of team teaching are comparable to the costs of more traditional methods(36).

If there is an apparent paradox in the foregoing paragraph, it is only one of the many to be found in the literature on team teaching. One point does emerge rather strongly, however, and that is the situational factors are important in the initiation of team teaching projects in

any particular school. The importance of the relationship appears to lie not so much in the question of what is the required structural situation for team teaching as in the existing structural situation. As Brickell observes, in describing a state-wide inventory of the changing instructional approaches undertaken in the state of New York in 1961: "Most of the changes that did occur, took place within the existing structural framework of the schools (6, p.19)." Olds concurs in this opinion, noting that "...in virtually all cases where a team is introduced into a school system, it is fitted into the existing conditions of that system(28, p.106)." Because no two schools are exactly the same, and because team teaching is thus forced into a vast variety of structural situations, it is not surprising that the literature on the subject is so ambiguous. Nor is it surprising that Olds, in developing his taxonomy, asserts:

Virtually every school differs in some respect from every other school, and it is important in trying to describe a team teaching project to be completely aware of the structural conditions which existed in the system prior to the advent of team teaching(28, p.106).

"These conditions," he concludes, "represent external controls that are imposed upon the teaching teams."

The structural conditions of which Olds and Brickell write are such things as the degree of gradedness and departmentalization in the school, the size of the school, the kind

and amount of financial and human resources provided, and the goals and specific plans behind the educational philosophy of the educators--all of which Olds includes in his taxonomy. There are other situational factors which are important too, though. Brickell, claims that the introduction of any educational change requires highly educated staff members(6, p.36). Carlson's research suggests that the pupil enrollment is another important factor in the adoption of innovation(9, p.55).

The work of Carlson and Rogers, as noted above, does not suggest that the financial resources of the community have no bearing on the rate of adoption of innovation, only that the relationship is not necessarily a cause-and-effect one. Thus, it is not unreasonable to accept as valid Kumpf's word-picture of the type of community in which adaptable schools are found:

An adaptable school tends to be located in a community which has many people represented in the white-collar or professional occupations, has a high cultural level, has a high percentage of owner-occupied dwellings, and has many inhabitants 50 years of age or older. It tends to be high in per capita wealth, per pupil expenditure for education, per cent of 8th grade, high school and college graduates. A fairly high median (educational level) has been attained by those who are 25 years of age and older in the community. A low percentage of the population is foreign born. It has a high level of understanding of what schools can do(21, pp.13-15).

Implicit in Kumpf's outline is the implication that the adoption of team teaching, or other educational innovations,

may be influenced to a large extent by the socio-economic level of the community and by the progressiveness, in educational terms, of the community. The structural conditions in which education is carried on in any community reflect community attitude toward both education and the adoption of educational innovations.

Principal Variables

Research on educational innovation has taken two major paths. The majority of it can be traced to Mort and his concept of 'adaptability'. In this tradition, adaptability was predicted on the basis of per pupil expenditure. More recently, diffusion studies have concentrated on the psycho-sociological aspects of the adoptive process. In Carlson's research, the assumption is that the rate of acceptance of a new practice or idea by individuals or adopting groups depends upon the characteristics of the adopting unit, the way the adopting unit is joined to communication channels, and the position the adopting unit holds in the social structure of like units(8, pp.1-14). The focal point in this process, says Carlson, is the superintendency(9, p.10). Griffiths concurs, voicing the opinion that the principal is too far removed from the power of ultimate decision over acceptance or rejection of an innovation to wield much influence(17, p.284). Conversely, most of the literature on team teaching stresses the importance of the position of the

principal in the process of initiating and successfully operating instructional changes in the schools.

Miklos labels adaptability and readiness for change as elements to be fostered by a desirable school climate; he adds that although not all of the factors which contribute to school climate are under the principal's control, "...it must be granted that he holds a potentially influential position(23, p.28)." Ingram, too, points to the potential importance of the principal as a "change agent" in a well run school where good ideas for improvement flow from the staff as well as from the administration(19). The belief is shared by many other writers(2,11,34,35). Culbertson asks:

Is the implementation of educational change so dependent upon administrative and supervisory teams that individual administrators do not stand out as innovators? Does the position of the principalship within the organizational hierarchy prevent the principal from assuming an aggressive role in change? Could it be that in helping others make educational changes the principal is just as ingenuous as those who make the changes?(12, p.250).

Demeter unhesitatingly provides the answer to the query posed by Culbertson:

Building principals are the key figures in the process. Where they are both aware of and sympathetic to an innovation, it tends to prosper. Where they are ignorant of its existence, or apathetic if not hostile, it tends to remain outside the bloodstream of the school(14, p.23).

Andrews agrees with Demeter in the suggestion that it is in implementing changes in the school program that the principal performs his most indispensable function(2, p.114).

These views are in accordance with the relatively recent tendency to view the principal as the educational leader of the school and community. As Sparby notes, although school boards today expect principals to act as agents of the boards, "They expect them also to exercise judgment and initiative"--a relationship which might be described as that of "professional leader and advisor"(34, p.18). The fact that local and central educational legislators are beginning to view the principal in such a way lends weight to the argument advanced by Demeter that building principals are the key figures in the innovative process.

It seems reasonable, in light of the changing concept of the role of the principal, to suggest that the characteristics of the innovative superintendent may also be the characteristics of the innovative principal. Since, as has been pointed out, principals in western Canada are emerging as instructional leaders in their schools and communities, it can be asserted that where team teaching is being practiced in western Canada it is being practiced with the principal's approval and under his supervision. To the extent that team teaching is a relatively new practice in western Canadian schools, it can be classed as an innovation in terms of Mile's definition; that is, as a "...deliberate, novel, specific change, which is thought to be more efficacious in accomplishing the goals of a system(24, p.40)."

It is reasonable to suggest, then, that there are important relationships between certain selected principal variables and: (a) the adoption of team teaching; and (b) the type of team teaching adopted as categorized by Olds(28).

What principal variables, then, would appear to be related to the dependent variables noted above? The major assumption in selecting the variables found to be significant by Carlson was that there are parallels between the characteristics of the innovative superintendent and the principal in whose school team teaching is being practiced. Carlson identified seven independent variables as being significantly related (.05 level) to rate of adoption of innovation in the Allegheny County study(9, p.55). These were, in order of significance: superintendent's origin (e.g. from within or without the system); amount of education; degree of professionalism; degree of opinion leadership; conflict in performance standards; accuracy of perception of innovativeness; and recency of education. Of these, only three were found to be significant at the .05 level of confidence in both the Allegheny County study and the West Virginia study (8, p.59). They were: degree of professionalism; degree of opinion leadership; accuracy of perception of innovation. A fourth variable--enrollment--was also significant at the .05 level in both studies. As well, Chesler et al. agree with Carlson's findings insofar as "...principals with the

innovative staffs are more 'professionally' oriented than those with less innovative staffs(11, p.275)."

One of the major drawbacks of the type of diffusion studies carried out by Carlson and others, a drawback which adds a measure of justification to exploratory and descriptive studies in general, and this one in particular, is summed up by Carlson as follows:

Despite the importance of innovators, apparently all explorations of their characteristics, including this one, suffer from an inadequate number of cases from which to make generalizeable statements. Therefore, the characteristics of innovators have not been identified with a great degree of assurance (8, p.65).

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CHAPTER III

RESEARCH METHODOLOGY

This chapter includes a description of the instrumentation and methodology which were used to collect and treat the data.

I. DATA COLLECTION

Three methods were used to collect the data for this study.

(1) A letter was sent to the four provincial Departments of Education in the four western Canadian provinces requesting information as to the names and addresses of each superintendent of schools (or counterpart) in each province.

(2) Questionnaires were mailed to each superintendent of schools or inspector of schools in the four western Canadian provinces requesting information as to the name of every school within his jurisdiction in which some form of team teaching was underway. The superintendents and inspectors were also asked to supply the name and address of each principal of each school in which teaching teams were employed. A self-addressed, stamped envelope was enclosed with each questionnaire in an effort to obtain a maximum response.

(3) An omnibus-type questionnaire was mailed to each principal of each school identified by the superintendents

and inspectors of schools. An accompanying letter requested the principal to complete all sections of the questionnaire and return it to the researchers. Once again, a stamped, self-addressed envelope was enclosed in an attempt to obtain a maximum number of responses. The omnibus questionnaire included (a) a questionnaire patterned on Olds' Taxonomy for Team Teaching(7, p.104); (b) a modification of the Professional Status Role Orientation Scale developed by Corwin(3) and used in some recent Canadian studies(5,8); (c) a modification of the Self-Designating Opinion Leadership Questionnaire developed by Rogers et.al.(9) and also used in some recent Canadian studies(6).

The questionnaire itself was sub-divided into four parts. Part I dealt with the structural requirements of the team teaching situations; Part II with the degree of autonomy, authority structure, and coordination existing within the teaching team and teaching team settings; Part III with the Professional Status Role Orientation Scale; and Part IV with the Self-Designating Opinion Leadership Scale.

Approximately one month after the questionnaires were mailed to the superintendents, and one month after the questionnaires were mailed to principals, reminder letters were sent to those from whom no replies had been received. One month after the reminders were sent to the principals,

the sample was closed, and subsequent replies were not included in the sample. A verbal description of the potential and final samples is provided on page 52, and a tabular representation is contained on page 55.

II. THE QUESTIONNAIRE

Team-Teaching Taxonomy

This instrument was developed by four researchers under the direction of D.A. MacKay and J.E. Seger, Department of Educational Administration, University of Alberta, Edmonton. It was patterned on the Olds' Taxonomy for Team Teaching (7, pp.104-105), and consisted of four parts. The first section of this taxonomy was designed to elicit information from the principal on the structural characteristics of the specific situation in which the teaching team operates. This first section was deemed necessary because of the fact that the structural conditions operate as external controls on the teaching team. The section consisted of a data questionnaire which asked the principal to describe the situation in terms of (a) gradedness, (b) departmentalization, (c) size of team(s) and school, (d) financial and human resource allocations, and (e) goals and specific plans.

Each of the three remaining sections of the taxonomy was designed to measure the principal's perception as to the degree to which the teams operating in his school could be classified in terms of (a) autonomy or span of control within

the team, (b) authority structure and degree of specialization within the team, and (c) coordination existing within the team setting. Each of these was expressed in degrees: none, little, moderate, considerable, or total. Responses were weighted from one to five respectively in order to obtain scores for each of the variables in each of the schools.

Professional Role Orientation Scale

This instrument was developed by R.G. Corwin to measure an individual's orientation to the teaching profession and its norms. Carlson has pointed out the significance of professionalism of superintendents in the rate of adoption of innovation (see Chapter II). The scale has been modified and validated for Canadian schools by Robinson(8). This scale consists of four sub-scales which purport to measure the respondent's orientation, or attitude, toward: (a) the client (pupils); (b) the profession and colleagues; (c) the notion that competency is based on a monopoly of knowledge; and (d) decision-making autonomy for individual practitioners. The instrument contained sixteen items to which the respondent was asked to respond in one of five ways: "strongly agree", "agree", "undecided", "disagree", or "strongly disagree". The responses to each item were weighted from five to one respectively.

Opinion Leadership Scale

Carlson found a significant relationship between

opinion leadership and the rate of adoption of an innovation (1). Rogers comments on an opinion leadership scale developed in agricultural studies(9, p.229ff) which produced a split-half reliability of .703 in a study of Ohio farmers. As the name suggests, the scale is a self-rating one, and the score provided purports to indicate the extent of an individual's influence in the formation of opinion among his colleagues and fellow-workers. The scale consists of six items scored in the following way:

ITEM NUMBER	CORRECT ANSWER	SCORE
1.	Yes	1
2.	a	1
3.	a	1
4.	b	1
5.	a	1
6.	Yes	1
Total Possible		6

Only two answers were possible for each item. Responses which did not correspond to those above were scored as 0. Principals who scored high on the scale are considered to be opinion leaders; those who scored low, followers. Opinion leaders are said to possess opinion leadership. As noted, this scale was subjected, like the Professional Role Orientation Scale, to validity and reliability analyses during its development.

III. ASSUMPTIONS AND LIMITATIONS

Assumptions

1. It was assumed that the superintendents to whom the initial questionnaires were mailed would know whether or not team teaching was being practiced in any of the schools under their jurisdiction. It was further assumed that the superintendents would be able to provide the names and addresses of the principals in whose schools teams were in operation.

2. It was assumed that the questionnaire patterned on the Professional Role Orientation Scale and the Opinion Leadership Scale would give accurate and valid measurements of the variables being studied.

3. It was assumed that for purposes of statistical analysis, the scales used in the questionnaire were at least interval scales.

Delimitations

1. This study included only those schools which were identified by superintendents as being schools in which some form of team teaching was being employed.

2. This study included schools in only the four western Canadian provinces: British Columbia, Alberta, Saskatchewan, and Manitoba.

3. This study included only those schools whose principals have completed and returned the questionnaires mailed

to them.

Limitations

1. Because the questionnaire patterned on Olds' Taxonomy for Team Teaching has not been used before, the ability of the instrument to detect slight differences in the principal's perception may be questioned. Thus, only "face" validity can be assumed for Parts I and II of the questionnaire.

2. The questionnaires used in this study measured the data in terms of principals' perceptions only and does not include data based on superintendents' or teachers' perceptions.

3. The principals who participated in this study were all "adopters" of team teaching; no non-adopters were included in the sample.

4. The analyses, which were both bivariate and multivariate, did not account for all of the significant variables operative in all of the relationships investigated.

IV. TREATMENT OF THE DATA

This section describes in detail how the data were organized and treated. It also specifies the research hypotheses and the procedures used in examining the data for prediction of time and extent of adoption of team teaching and for prediction of the nature of the team practices adopted.

Predictor and criterion variables are also described in detail.

Although this study was primarily descriptive, it may also be labelled exploratory because of the nature of the research purposes. Selltitz differentiates between various research designs according to the purpose of the research and has suggested the following:

1. The purpose of exploratory studies is:

...to gain familiarity with a phenomenon or to achieve new insights into it, often in order to formulate a more precise research problem or to develop hypotheses.

2. Descriptive studies have one or both of the following purposes:

...to portray accurately the characteristics of a particular individual, situation, or group (with or without specific initial hypotheses about the nature of these characteristics);

...to determine the frequency with which something occurs or with which it is associated with something else (usually, but not always, with a specific initial hypothesis) (10, p.50ff).

The research carried out in connection with this study involved aspects of both exploratory and descriptive studies as defined by Selltitz.

Data Organization

The raw data were entered on punch cards and verified. All analyses were carried out using the PERSUB package with the IBM 7040 computer at the University of Alberta. The program was used to obtain the bivariate correlations between each predictor and the particular criterion studied

within each sub-problem. As well, a step-wise regression analysis(2,4) was used to obtain multiple regression correlation coefficients between each set of predictors combined one-by-one in descending order of their unique contribution to the common variance.

Data used in connection with the status study were counted and tabulated. In some cases the data were represented through the use of figures rather than tables. Standard deviations and means for each of the structural and situational variables used in connection with the status study were calculated.

Research Hypotheses

Two major problems with two and three sub-problems, respectively, formed the basis for the statistical analyses described here. The first hypothesis was that seven selected principal variables (derived from previous research on the adoption process), along with two situational variables (selected because situational variables are of obvious importance in discussing team teaching) would be significantly correlated with the criterion measure of "time of adoption", a variable which purports to embody the notion of 'early' as opposed to 'late' adoption of an innovation. The second hypothesis was that the same predictor variables would be significantly related to the criterion "extent of adoption", a variable purported to measure the extent of the school's

commitment to the innovation. Predictors were selected on the basis of the underlying idea that the principal's attitudes toward professionalism, his position as an influencer of opinion, and his origin would have an effect upon his behavior in the adoption process. The two situational variables selected as predictors were both of a resource allocation nature (human and material). Both of these "resource" predictors were derived from the principal's perception as to the relative proportion of human and material resource allocation provided for his school compared to other schools in his system. Both were simple dichotomies.

The "time" and "extent" variables were used as criterion in the first set of problems and as predictors in the second set. In both cases, the variables selected were based on simple authentic pieces of information provided by the principals. "Time" of adoption refers to the relative "age" of the teaching team on a nine-point scale, with each point representing six months, and the "oldest" team scored at nine. Similarly, "extent" of adoption was defined as a simple ratio between the number of teams operating in the school and the number of full-time staff members.

In the second set of problems, the research hypotheses stemmed from the idea that the nature of the team practices adopted (in terms of degree of autonomy, authority structure and coordination as per Olds' Taxonomy) would be significantly

related to the time and extent of adoption--the idea of an evolutionary "life-cycle" in organizations is present in much of the recent systems and organizational development theory. Similarly, it was an underlying idea that the nature of the teams adopted would be significantly related to certain principal characteristics--particularly those associated with the principal's attitude toward professionalism. The rationale here was that the principal's attitudes, particularly those toward his colleagues, his clients (pupils), colleague competence, and decision making, would have an effect on the autonomy, structure and coordination descriptive of the teams adopted. As a result, the remaining four predictors selected for the second set of problems (in addition to the "time" and "extent" variables) were the four subscale scores on the Professional Role Orientation Scale (hereafter referred to as the P.R.O. Scale).

Specific Statement of the Research Hypotheses. This section contains a specific statement of the research hypotheses described in the previous section. In each case a null research hypothesis is stated in verbal form. Reference is made to both multiple correlation and bivariate correlation for each case.

Time of Adoption Null Hypotheses. Taken individually or in combination with the other predictor variables studied, there is no significant relationship between the criterion of "time of adoption" and the following variables:

- 1.1 mean principal attitude toward pupils.
- 1.2 mean principal attitude toward profession and colleagues.
- 1.3 mean principal attitude toward competence based on knowledge.
- 1.4 mean principal attitude toward decision-making autonomy.
- 1.5 Mean principal professionalism (i.e. total P.R.O. score).
- 1.6 mean principal opinion leadership.
- 1.7 mean principal origin (i.e. "insider" or "outsider").
- 1.8 mean relative amount of human resource allocation.
- 1.9 mean relative amount of material resource allocation.

Extent of Adoption Null Hypotheses. Taken individually or in combination with the other predictor variables studied, there is no significant relationship between the criterion of "extent of adoption" and the following variables.

- 2.1 mean principal attitude toward pupils.
- 2.2 mean principal attitude toward profession and colleagues.
- 2.3 mean principal attitude toward competence based on knowledge.
- 2.4 mean principal attitude toward decision-making autonomy.
- 2.5 mean principal professionalism.
- 2.6 mean principal opinion leadership.
- 2.7 mean principal origin.

- 2.8 mean relative amount of human resource allocation.
- 2.9 mean relative amount of material resource allocation.

Team Autonomy Null Hypotheses. Taken individually or in combination with the other predictor variables studied, there is no significant relationship between the criterion of team autonomy and the following variables.

- 3.1 mean principal attitude (orientation) toward pupils.
- 3.2 mean principal attitude toward the profession and colleagues.
- 3.3 mean principal attitude toward decision-making autonomy.
- 3.4 mean principal attitude toward competence based on knowledge.
- 3.5 mean "age" of the teaching team.
- 3.6 mean extent of adoption of teaching teams.

Team Structure Null Hypotheses. Taken individually or in combination with the other predictor variables studied, there is no significant relationship between the criterion of team structure and the following variables.

- 4.1 Mean principal attitude toward pupils.
- 4.2 mean principal attitude toward the profession and colleagues.
- 4.3 mean principal attitude toward decision-making autonomy.
- 4.4 mean principal attitude toward competence based on knowledge.

4.5 mean "age" of the teaching team.

4.6 mean extent of adoption of teaching team.

Team Coordination Null Hypotheses. Taken individually or in combination with the other predictor variables studied, there is no significant relationship between the criterion of team coordination and the following predictor variables.

5.1 mean principal attitude toward pupils.

5.2 mean principal attitude toward the profession and colleagues.

5.3 mean principal attitude toward decision-making autonomy.

5.4 mean principal attitude toward competence based on knowledge.

5.5 mean "age" of the teaching team.

5.6 mean extent of adoption of team teaching.

Research Hypotheses Testing

As noted previously, all hypotheses were tested using both bivariate correlational analyses and step-wise regression analyses. For each of the correlational analyses, the level of significance, in terms of alpha error was set (a priori) at the five per cent level ($p \leq .05$). In each case, a two-tailed test was used because of uncertainty about the direction of some of the hypothesized relationships. Each of the hypotheses tested by the correlational analyses took the form:

$$H_0: r = 0$$

$$H_1: r \neq 0$$

Where r is the Pearson product moment correlation (or bi-serial correlation) between predictor and criterion.

For all hypotheses, the probability levels for the step-wise regression analyses were not set a priori. The choice of the step-wise regression analysis was made because it offered the opportunity to obtain a picture of the relationships between sets of predictors and the criterion as well as between the individual predictor variables and the criterion. In addition, the ordering of the predictors, in terms of the contribution made by each to the over-all prediction of a criterion measure from a set of predictor variables, was viewed as an important piece of information. Although the multivariate analyses did not account for all the significant variables within each of the situations studied, it did prove to be a useful tool in the investigation of an area as complex as that of the adoption process. The hypotheses took the algebraic form:

$$H_0: R^2 = 0$$

$$H_1: R^2 \neq 0$$

Where R^2 is the squared multiple correlation between the set of predictors and the criterion measure.

V. SUMMARY

The purpose of this chapter was to describe the instrumentation and methodology used in the research design. Two major purposes formed the basis of this study: to describe the status of team teaching in western Canada; and to investigate the relationships between selected principal and situational variables and the time, extent and nature of the adoption of team teaching in western Canadian schools.

A questionnaire was designed to elicit information from principals in whose schools teaching teams were employed. Information relevant to the status study was tabulated.

Research hypotheses stemming from the literature and research reviewed in Chapter II were stated in the form of Null and Alternate hypotheses. Data relevant to the testing of these hypotheses were subjected to correlational and stepwise regression analyses. The predictor variables selected for prediction of time and extent of adoption of team teaching were the four sub-scales of the P.R.O. Scale, the total score of the P.R.O. Scale, a measure of principal opinion leadership, principal origin, and two situational factors: relative amount of human resource allocation and relative amount of material resource allocation.

Predictors selected for the prediction of the nature of the teams adopted (in terms of degree of autonomy, authority structure and coordination) were the four sub-scale scores

from the P.R.O. Scale, and two indices of innovativeness, time and extent of adoption of team teaching.

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CHAPTER IV

TEAM TEACHING IN WESTERN CANADA

I. INTRODUCTION

A major purpose of this research was to provide a description of the status of team teaching in the four western Canadian provinces. It was not a purpose of the study to attempt to evaluate team teaching operations. Part I of the questionnaire was designed to elicit information on three particular features of the team practices in western Canada. The first type of information sought was that pertaining to the extent to which teaching teams are employed and at what grade levels. The second concerned the particular subject-matter areas or disciplines in which team teaching is being used. The third dealt with the structural characteristics of the teams, and with characteristics of team settings.

II. DESCRIPTION OF THE POTENTIAL AND FINAL SAMPLE

The potential sample consisted of all the schools in the four western Canadian provinces whose superintendents or inspectors had identified as having some form of team teaching operations underway during the school year 1965-66. Of

248 superintendents surveyed, 185 replied, identifying 112 schools where team teaching was being practiced. Questionnaires were mailed to the principals of the 112 schools. Of the principals surveyed, 93 responded. Because of some incomplete returns, the usable sample was reduced to 78--a 70 per cent return in terms of the number of schools originally identified. For one of the data analyses, the actual number of usable returns was 77. Table I indicates the sample distribution on a provincial basis.

III. DESCRIPTION OF THE TEACHING TEAMS

The final sample on which this study was based, as noted above, consisted of 78 schools. The principals of these schools identified 215 separate teaching teams operating within the schools (for an average of 2.8 teams per school). Individual schools, however, reported as few as one and as many as seven teams in operation. The teams varied in size from two to as many as twelve teachers per team. They differed, too, with respect to the grade levels within which they operated, the number of different grades they encompassed, and the subject-matter areas with which they were concerned.

Grade Levels and Teaching Teams

Of the 215 teaching teams in the sample, 158 were organized within single-grade levels. The remaining fifty-seven

teams worked with pupils at two, three or four different grade levels. These data are reported in Table II.

An examination of the table will verify that very few teams (relative to the total number) were employed at the primary and elementary school levels. In fact, the forty-two teams so-reported represent only twenty per cent of the total, with the remaining 173 teams operating at the junior-high level (with 45% of the total) and the senior-high level (35%). Thus, nearly half of the total teams reported (96 of 215) were operative in grades seven, eight and nine. Similarly, the vast majority of the multi-grade teams reported (i.e. 34 of 57) was also at the junior-high level. Comparison of Table II and Table XI indicates, as well, that over half of the multi-grade teams in the junior high schools (19 of 34) included all three grades (i.e. 7, 8, and 9) whereas no such pattern occurred at any of the three other levels. In fact, of the nine teams reported at the primary-grade level, none are even classified as multi-grade teams.

Subject-Matter Areas and Teaching Teams

Part I of the questionnaire requested principals to indicate the subjects in which teaching teams were employed in their schools. Twenty-seven different subjects were reported. In addition, the principals reported seven interdisciplinary or combined-subject areas in which teams were

TABLE I
 DESCRIPTION OF POTENTIAL
 AND FINAL SAMPLE

	Man.	Sask.	Alta.	B.C.	Total
No. of Supts. to Whom Letters Were Sent	44	76	75	53	248
No. of Supts. Replying	32	55	58	40	185
No. of Schools Identified	16	23	40	33	112
No. of Schools Replying	14	20	33	26	93
No. of Usable Returns	14	16	28	20	78
Percentage of Potential Schools in Final Sample	87%	69%	70%	60%	70%

TABLE II

TEACHING TEAM DISTRIBUTION BY SCHOOL
IN WESTERN CANADA

School Level	Grades Included	Single-Grade Teams	Multi-Grade Teams*	Total Teams
Primary	1 - 3	9	0	9
Elementary	4 - 6	24	9	33
Jr. High	7 - 9	62	34	96
Sr. High	10 - 13	63	14	77
Total		158	57	215

*Where multi-grade teams cross school levels, they are tabulated here according to which level has the most grades represented on the team. If only two grades are represented on the team, school level relates to the highest grade reported.

operating. For purposes of tabulation, these subjects have been subsumed under eight curriculum areas and one combined-subject or interdisciplinary category. The data are tabulated in Tables III to X, pages 61 to 69.

Social Studies Teaching Teams. Of the 215 teaching teams, 67 operated within the curriculum area designated by the term 'social studies'. As is the case with many of the other subject areas, social studies teams were often used for instructional purposes for part of the instruction of a group of students within a subject, rather than for the total instruction in that subject for those students. Fifty of the teams were employed within single grades; the other seventeen cut across from two to four different grade levels. The subjects subsumed under this classification include social studies, religion, geography, current events and history. The sixty-seven teams operating within this subject matter area represent thirty-one percent of the total teams. The data are presented in Table III.

English Teaching Teams. Forty-seven (22%) of the total teaching teams reported operated in the curriculum area designated English. This area includes English, English literature and English language. Thirteen of the teams were multi-grade teams. The data are presented in Table IV. An examination of this table indicates that, like the social studies teams, the English teaching teams were most prevalent

in the junior and senior high school grades, although teams in both areas were reported in the lower grades.

Mathematics Teaching Teams. Thirty-one (approx. 14%) of the total teams reported specialized in mathematics. Only four of these teams (all four at the junior-high level) were multi-grade teams (13%), whereas thirteen of the English teams (28%) and seventeen of the social studies teams (25%) cut across grade levels. The data are presented in Table V. The subjects included in this classification are mathematics and algebra.

Science Teaching Teams. Thirty of the total teams reported (approx. 14%) were teams involved in the instruction of such subjects as sciences, physics, chemistry and biology. Nine of these teams (30%) were multi-grade teams. The distribution by grades of science teaching teams in western Canada is illustrated in Table VI.

Developmental Teaching Teams. The term, 'developmental', as applied to curriculum areas refers to those subjects dealing with physical and mental health. Twelve developmental teaching teams (approx. 6% of the total), involved in the instruction of such subjects as physical education, health, health and personal development, and guidance, were reported. As illustrated in Table VII, five of these teams were multi-grade teams. As well, such teams operated at all four school levels.

Interdisciplinary Teaching Teams. Twelve interdisciplinary or combined-subjects teaching teams (approx. 6% of the total) were reported. Of these, only two were both multi-subject and multi-grade teams. These two teams differed from most teams in other respects as well. One was labelled a science-literature team which was utilized in grades five, seven and eight (the only multi-grade team involved with non-sequential grades). The other was reported as an "all-subject" team in grades seven, eight and nine (the only multi-grade team responsible for all the instruction of its students). Three other interdisciplinary teams were listed as "all-subject" teams, but these teams were employed in single grades.

The remaining six interdisciplinary teams were involved with either English-social studies areas or mathematics-science areas. One, however, was listed as an English-social studies-religion team (the only tri-subject team reported). The distribution of interdisciplinary teams by grade is given in Table VIII.

Vocational Teaching Teams. Six vocational teaching teams, all in the upper grades, were reported. These teams (approx. 3% of the total) were responsible for some or all of the instruction in such subjects as shop and home economics, typing, electronics, graphic arts and business mechanics. Only two of the teams were multi-grade in nature. The grade

distribution of vocational teaching teams is reported in Table IX.

Arts and/or Music Teaching Teams. Five of the eight teaching teams which dealt with music and/or arts were reported in the primary grades. As Table X illustrates, the other three teams (two in the elementary grades and one in the high school) were multi-grade in nature.

Foreign Language Teaching Teams. Two teaching teams (representing approx. 1% of the total) were reported. Both were multi-grade teams (grades 4, 5, and 6; and grades 10 and 11). No table is given.

TABLE III

SOCIAL STUDIES TEACHING TEAM FREQUENCIES
BY GRADE IN WESTERN CANADA

Grade	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
Single-Grade Teams	1	0	1	4	2	3	3	10	7	11	4	4	0	
Combined-Grades Team	1	1	1	1	1	1	4	3	1	2	1	1	1	

TABLE IV
ENGLISH TEACHING TEAM FREQUENCIES
BY GRADE IN WESTERN CANADA

[illegible]

TABLE V

MATHEMATICS TEACHING TEAM FREQUENCIES

BY GRADE IN WESTERN CANADA

Grade	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
Single-Grade Teams	0	0	0	0	1	4	0	6	7	6	1	2	0	
Combined-Grade Teams								3						
									1					

TABLE VI
SCIENCE TEACHING TEAM FREQUENCIES
BY GRADE IN WESTERN CANADA

Grade	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
Single-Grade Teams	0	0	1	0	0	3	1	2	4	5	3	1	1
Combined-Grades Teams					1		4		1		1		

TABLE VII

DEVELOPMENTAL TEACHING TEAM FREQUENCIES
BY GRADE IN WESTERN CANADA

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
Grade Single-Grade Teams	0	0	1	0	0	0	1	2	0	0	2	0	1
Combined-Grades Team			1				2						
								1					
								1					

TABLE VIII

INTERDISCIPLINARY TEACHING TEAM FREQUENCIES
BY GRADE IN WESTERN CANADA

[illegible]

*This team includes only grades 5, 7, and 8.

TABLE IX

VOCATIONAL TEACHING TEAM FREQUENCIES
BY GRADE IN WESTERN CANADA

Grade	IX	X	XI	XII
Single-Grade Teams	2	1	0	1
Combined-Grades Teams			1	
		1		

TABLE X

ARTS AND MUSIC TEACHING TEAM FREQUENCIES
BY GRADE IN WESTERN CANADA

Grade	I	II	III	IV	V	VI*
Single-Grade Teams	2	1	2	0	0	0
Combined-Grades Team	1					1

* One combined team for grades 9, 10, 11, and 12 was reported.

IV. STRUCTURAL CHARACTERISTICS OF THE TEAMS

In addition to a description of the extent, subject-matter areas, and grade-level involvement of team teaching in western Canada, this chapter has as a purpose a description of the structural characteristics of the teaching teams themselves. This section describes the structural characteristics and settings of the teaching teams in terms of the following variables: the number of teachers per team; the number of pupils per team; the degree of departmentalization within which the teams operate; the percentage of teacher time devoted to team teaching during the school day; the proportion of human resources provided team teaching projects; the proportion of material and financial resources or support provided team teaching projects.

Number of Teachers Relative to Team Size

Teaching teams varied in size from as few as two teachers per team to as many as twelve teachers per team. Table XII illustrates that the majority of teams (79.5%) were composed of four or fewer teachers, that the modal team was a two-teacher team, the median a three-teacher team, and the mean number of teachers per team was 3.66. It should be noted as well that the total number of teachers involved in teaching teams as reported in Table XII is not indicative of the total number of teachers involved in team teaching in

western Canada. A number of these teachers were members of more than one team.

Number of Pupils Relative to Team Size

Table XIII shows the distribution of teaching teams in western Canada in terms of sizes of the teams relative to the number of pupils per team. As can be seen in Table XIII, the teams ranged in size from less than fifty pupils per team (the smallest number reported was thirty) to as many as eight hundred and fifty. In terms of school levels, Table XIII illustrates the fact that the modal team at all school levels involved between fifty-one and one hundred pupils. Comparison of Tables XIII and XIV, however, suggests caution in the amount of reliance placed on the modal central tendency. While eighty-nine of the 215 teams (41.4%) were composed of between fifty-one and one hundred pupils, there was a general tendency for team size to increase in the higher school levels. This is particularly noticeable when one compares the mean-average number of pupils in single-grade teams among the four school levels. For instance, Table XIV shows the mean-average number of pupils in primary grade teams (56.55) to be less than half the size of the mean-average senior high school teams (130.11).

At every school level, the mean average number of pupils in multi-grade teams was much larger than for single-grade teams. Ranges in team sizes also increased noticeably

TABLE XII

FREQUENCY, CUMULATIVE FREQUENCY, AND CUMULATIVE
PERCENTAGE FREQUENCY FOR SIZE OF TEACHING TEAMS
BY NUMBER OF TEACHERS PER TEAM

Number of Tch'rs.	Number of Teams	Percentage	Cumulative Frequency	Cumulative Percentage Frequency
12	1	.47	215	100.00
11	1	.47	214	99.53
10	5	2.32	213	99.06
9	5	2.32	208	96.74
8	2	.93	203	94.42
7	1	.47	201	93.49
6	12	5.58	200	93.02
5	17	7.91	188	87.44
4	47	21.86	171	79.53
3	53	24.65	124	57.67
2	<u>71</u>	<u>33.02</u>	71	33.02
Total	215	100.00		

TABLE XIII

SIZE OF TEACHING TEAMS BY
NUMBER OF PUPILS PER TEAM
AND SCHOOL LEVEL

Number of Pupils Per Team																
School Levels	Frequencies															Total
	0-50	51-100	101-150	151-200	201-250	251-300	301-350	351-400	451-500	551-600	651-700	701-750	751-800	801-850		
Primary (1 - 3)	3	6														9
Elementary (4 - 6)		15	15	1		2										33
Jr. High (7 - 9)	7	35	19	10	6	3		2		9		5				96
Sr. High (10 - 13)	8	33	11	12	3			2	2	2			2			77
Total	18	89	45	22	10	3	2	4	2	2	11	-	5	2	-	215

in progressively higher school levels, as did means and standard deviations, particularly with single-grade teams.

Degree of Departmentalization in Team Settings

Ninety-one teams (42.32% of the total) operated within a setting which was 100% departmentalized. Forty-six teams (21.4%) were employed in schools which were more than fifty per cent departmentalized. Two other categories were investigated (less than fifty per cent departmentalized and totally undepartmentalized). As the data in Table XV indicates, there were totals of 39 teams in each of these categories, which accounted for the remaining 36.28% of the teams. With regard to Olds' assertion that the description of a team teaching project must take into account such structural conditions as departmentalization, since such conditions "... represent external controls that are imposed upon the teaching team(3, p.106)", several points are worth stressing. First, over eighty per cent of the total teams reported in western Canada operated within at least partial departmentalization. Second, while departmentalization was a structural characteristic of 33% of the primary-level teams and 42% of the elementary-level, the percentages for the junior and senior high school levels were much larger--94% and 90% respectively. There appeared to be no differences in the degrees of departmentalization associated with single-grade or multi-grade teams: 82% of the single-grade and 81% of the

TABLE XIV

CHARACTERISTICS OF TEACHING TEAM SIZE BY NUMBER
OF PUPILS PER TEAM AND SCHOOL LEVEL, IN SINGLE-
GRADE AND MULTI-GRADE TEAMS

SCHOOL LEVEL	SINGLE GRADE TEAMS				MULTI-GRADE TEAMS			
	N	Range	Mean	S.D.	N	Range	Mean	S.D.
Primary (1 - 3)	9	30- 72	56.55	18.88	-	-	-	-
Elementary (4 - 6)	24	55-130	97.75	11.15	9	52-329	164.78	105.87
Jr. High (7 - 9)	62	40-269	106.46	62.90	34	44-800	396.91	297.59
Sr. High (10 - 13)	63	35-500	130.11	100.84	14	32-850	370.86	315.83

TABLE XV

DEGREE OF DEPARTMENTALIZATION IN SCHOOLS
HAVING TEACHING TEAMS
BY SCHOOL LEVELS

SCHOOL LEVEL	DEGREE OF DEPARTMENTALIZATION				
	100%	>50%	<50%	None	None
Primary (1 - 3)	-	-	3	6	-
Elementary (4 - 6)	1	3	5	15	4
Jr. High (7 - 9)	27	16	18	1	5
Sr. High (10 - 13)	31	17	9	6	2
Total	59	36	35	28	11

multi-grade teams were at least partially departmentalized.

Teacher-Time Devoted to Team Teaching Operations

Principals were asked to estimate the percentage of the teacher's day devoted to team teaching operations. Incomplete returns limited the number of teams on which data was received pertaining to teacher-time to 194. The percentages reported for these 194 teams are presented in graphic form in Figure 1. One hundred and thirty-six of the teams (70%) involved less than one-quarter of the teacher's day. As the histogram indicates, only sixteen teaching teams (8% of the total) involved teachers in full-time team operations. Similarly, fifteen of the teams required less than five per cent of the teacher's day. Fifty-nine of the teams (30.41%) are shown in Figure 1 to fall within the interval representing total teacher time of eleven to fifteen per cent per day. The frequency distribution as reported and recorded is quite positively skewed.

Proportion of Resources Provided to Team Operations

Sixteen (21%) of the principals in the sample responded positively when asked if they believed that they had more than the usual proportion of human resources (teachers, clerical aides, etc.) provided for other schools in their systems. Similarly, sixteen principals again replied that they believed that their schools enjoyed more than the usual proportion of material (A-V equipment, etc.) and financial support provided

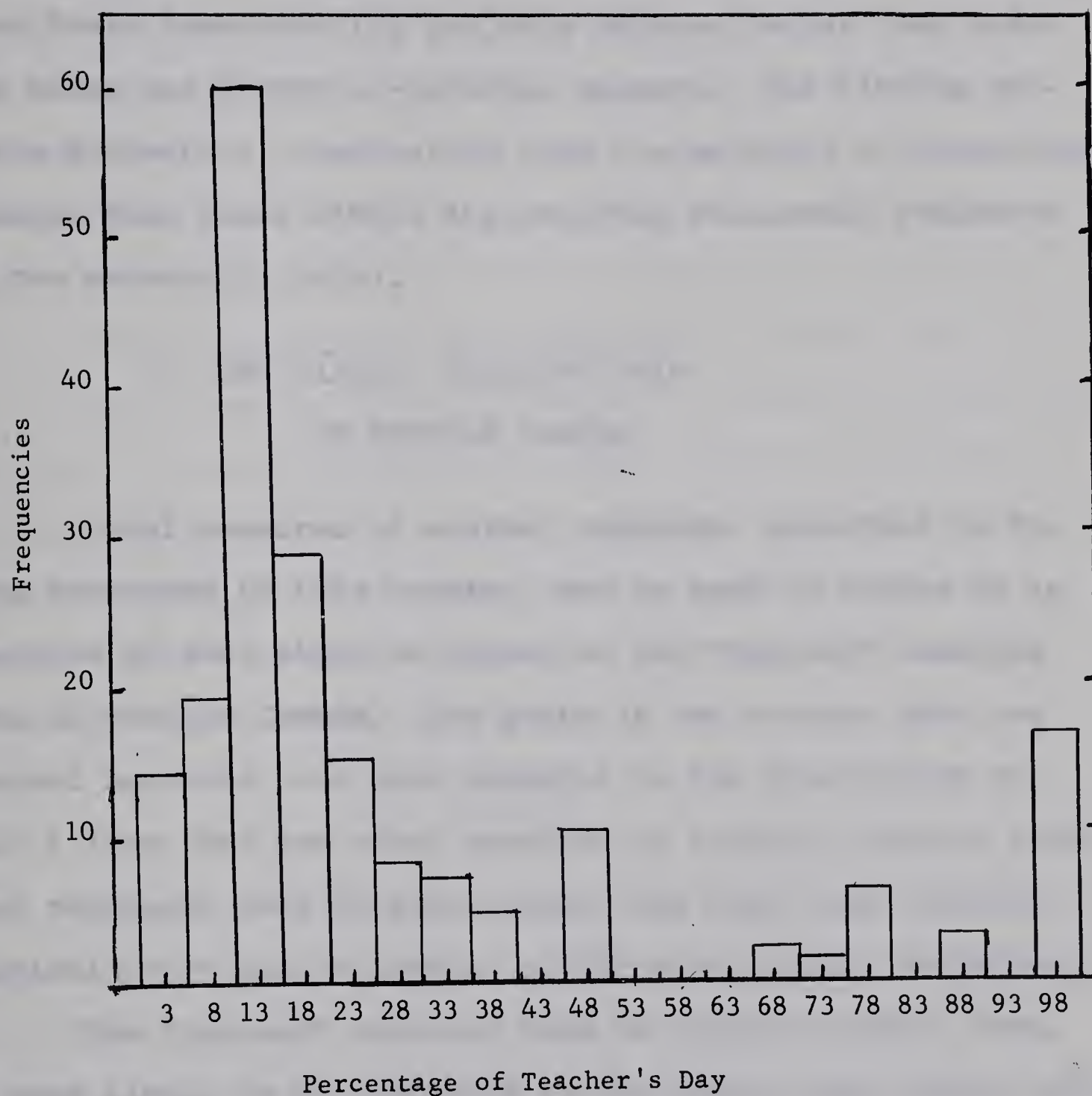


FIGURE 1

PERCENTAGE OF TEACHER'S DAY DEVOTED
TO TEAM OPERATIONS
(N = 194)

other schools in their systems. Of these two categories, only eight principals answered yes to both questions. Thus, only a very small proportion (10%) of all principals reported that their team-teaching projects enjoyed better than average human and financial-material support. The finding supports Brickell's observation that the majority of educational changes take place within the existing structural framework of the schools(1, p.19).

V. THE TYPICAL TEACHING TEAM IN WESTERN CANADA

Modal measures of central tendency, described in the data presented in this chapter, can be used to arrive at an overview of what might be termed as the "typical" teaching team in western Canada. The modes of the various data, as nominal measures, are more amenable to the description of such a team than are other measures of central tendency since they represent what Ferguson terms "the only 'most typical' statistic that can be used(2, p.58)" with nominal variables.

The "typical" teaching team in western Canada, then, is most likely to be operating at the junior high school level (particularly in grade eight or nine) or in grade ten. It is a single-grade team; it is involved in the instruction of social studies-curriculum subjects or English-curriculum subjects. This typical or modal team is composed of two teachers and between fifty-one and one hundred pupils

(although the mean number of teachers and pupils over all the teams was 3.66 and 175.93 respectively). Further, the typical team operates within a completely departmentalized subject situation and is the only team in operation in the school (although the mean number of teams per school over all the schools is 2.8). The typical team is characterized by two additional factors: its operation requires only from eleven to fifteen per cent of the teacher's time per school day; and the teams are employed in schools which enjoy no more than the usual proportion of human and financial-material resources provided for other schools in the same system. It should be remembered that the "typical" team described here is a composite based on modes and is designed only to demonstrate the most common features of the teaching teams in western Canada.

VI. SUMMARY

The purpose of this chapter was to outline the findings of the status study on team teaching in western Canada. In particular, this chapter describes the extent of team teaching in western Canada and the nature of the teaching teams in terms of subject-matter and grade-level involvement, structural characteristics of the team, and characteristics of the team settings.

Although the data presented concerning the status of team teaching in the western provinces are worthy of further

investigation, interpretation and discussion, it is not the purpose of this study to do so in a general way. Several implications of the status findings, however, do appear interesting and will be discussing in the final chapter.

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CHAPTER V

PRINCIPAL, SITUATIONAL, AND TEAM CHARACTERISTICS
IN TEAM-TEACHING SCHOOLS

The second major purpose of this study is dual in nature. It involves analysis of the characteristics of school principals in whose schools teaching teams are employed and several situational variables in relation to two indices of innovativeness--time and extent of adoption of team teaching. It also involves analysis of the relationships between (1) six predictor variables: four indices of principal professionalism and the two indices of innovativeness noted above, and (2) three criterion descriptive of the nature of the teaching teams: autonomy of the team; structure of the team; and coordination within the team setting. Interpretation of the findings depends upon knowledge of the sample.

This chapter describes the characteristics of the school principals, situational factors, and teaching teams comprising the sample.

I. PRINCIPALS

Principal Professionalism

Part III of the questionnaire consisted of a modified version of the Professional Role Orientation Scale developed

by Corwin(1) and described in Chapter III (p. 37). This scale has been validated for Canadian schools by Robinson(3). It consists of four sub-scales which purport to measure the respondent's orientation, or attitude towards: (a) the client (pupils), (b) the profession and colleagues, (c) the notion that competency is based on monopoly of knowledge, and (d) decision-making autonomy for individual practitioners. Principals' scores on these four sub-scales, along with their total scores, constitute five of the predictor variables used in Problem I. Table XVI shows the means and standard deviations for each of these five predictor variables. Because of missing data, one of the schools which figured in these computations was dropped from the analyses in several sub-problems. Table XVII indicates the means and standard deviations for the five predictor variables with an N of 77 rather than 78.

As Table XVI illustrates, the mean total professional score for all 78 principals was 56.78 (out of a possible 80), with a standard deviation of 5.99. The standard deviation remains at 5.99 when the one questionnaire is omitted (Table XVII) and the mean changes slightly to 56.70.

Principal Opinion Leadership

Part IV of the questionnaire consisted of a modification of the Self-Designating Opinion Leadership Questionnaire developed by Rogers et. al.(4), described in Chapter III (p. 37). The questionnaire provides a score (0 to 6)

indicative of the extent of an individual's opinion leadership among his colleagues or co-workers, in the sense that he is influential in opinion formation.

Means and standard deviations for principal opinion leadership are reported, along with the means and standard deviations for the other principal characteristic and situational predictor variables, in Tables XVI and XVII. Examination of these two tables demonstrates that with an N of 78, the mean opinion leadership score is 4.32 with a standard deviation of 1.23. In the sample composed of only 77 principals the mean is raised slightly to 4.34, while the standard deviation remains unchanged (Table XVII).

Principal Origin

The final principal-characteristic variable is that of origin, defined as two possible categories: insider (1) or outsider (2). This insider-outsider variable has a mean of 1.19 and a standard deviation of 0.39 in both Tables XVI and XVII.

II. SITUATIONAL FACTORS

Resource Allocations

Two predictor variables are related to the relative amount of resource allocation (both human and material) within the team teaching situation. Like the insider-outsider principal variable, the two resource variables are

dichotomous variables defined as two possible categories: more than the usual proportion of resources (human and material) allocated to other schools in the same system (1), or relatively the same or less than the usual proportion of such resources (2).

Along with other principal and situational variables, the means and standard deviations for the two resource variables are presented in Tables XVI and XVII. In both tables, the means and standard deviations for both resource variables are 1.79 and 0.41 respectively. As was pointed out in Chapter IV (p. 77), and verified statistically in the tables which follow, relatively few schools in which teaching teams are employed have more than the usual proportion of human and financial-material resources provided other schools in the same systems.

Time of Adoption

Time of adoption, a variable which embodies the idea of early as opposed to late adoption, is used, within the context of this research, both as a criterion variable (Problem I) and as a predictor (Problem II). As with the other variables, the mean and standard deviation for this variable is shown in Table XVI, (where N equals 78), but not in Table XVII since the variable is a criterion only in Problem I(a).

The range in the "time of adoption" scores was 1 - 9,

scores which indicated the relative 'age' of the teaching team on a nine-point scale (with the 'oldest team' scored at nine). Thus, the mean time-of-adoption score of 3.32 indicates the relative recency of the diffusion of the team-teaching innovation in western Canada (i.e. each point on the nine-point scale represents six months).

Extent of Adoption

The variable designated 'extent of adoption', like that labelled 'time of adoption', serves as both criterion (Problem I) and predictor (Problem II). This variable is purported to indicate the schools' commitment of resources to the team-teaching innovation. For the purposes of this study, the extent-of-adoption variable for each school was defined as a simple ratio between the number of teams in the school and the number of full-time staff members.

The mean and standard deviation for the extent-of-adoption variable is presented in Table XVII along with those of the other variables. As can be seen in Table XVII, the mean for this variable (where N equals 77) is 12.16 with a standard deviation of 11.33. The scores ranged from a low of 1 to a high of 64 with the higher score describing the school most committed to the innovation. As was noted in Chapter IV (p. 53) the average number of teams per school was 2.8.

TABLE XVI

MEANS AND STANDARD DEVIATIONS FOR NINE PREDICTORS
AND THE CRITERION I_1 (TIME OF ADOPTION)
USED IN PROBLEM I(a)

N = 78*

Variable	Means	S.D.
Total Prof. Score	56.78	5.99
Opinion Leadership	4.32	1.23
Insider-Outsider	1.19	0.39
Orient. Client	9.31	2.72
Orient. Profession	27.72	2.75
Orient. Knowledge	12.18	2.17
Orient Autonomy	7.69	1.56
Rel. Amt. Human Res.	1.79	0.41
Rel. Amt. Mat. Res.	1.79	0.41
I_1 (Time of Adoption)	3.32**	2.09

*One school, which figured in these computations was omitted from the analyses in Problem I(b) and Problem II because of missing data.

**Range in these scores was 1 - 9.

TABLE XVII

MEANS AND STANDARD DEVIATIONS FOR THE NINE PREDICTORS
AND THE CRITERION I_2 (EXTENT OF ADOPTION)
USED IN PROBLEM I(b)

N - 77

Variable	Means	S.D.
Total Prof. Score	56.70	5.99
Opinion Leadership	4.34	1.23
Insider-Outsider	1.19	0.39
Orient. Client	9.29	2.73
Orient. Prof.	27.68	2.75
Orient Knowledge	12.18	2.18
Orient Autonomy	7.69	1.57
Rel. Amt. Human Res.	1.79	0.41
Rel. Amt. Mat. Res.	1.79	0.41
I_2 (Extent of Adoption)	12.16	11.33

III. TEACHING TEAMS

Part II of the questionnaire was designed to elicit information concerning the characteristics of the teaching teams in the sample. The structure of this part of the questionnaire was based on Olds' suggested "Taxonomy for Team Teaching" (5, p.104). In particular, three criterion measures were sought: degree of team autonomy; degree of team hierarchic structure; and degree of team coordination. The means and standard deviations for these three criterion measures are shown in Table XVIII.

Degree of Autonomy

This variable is intended to indicate the autonomy which the team has within the school organization. A team which is high on the autonomy scale is one which has a high degree of control over such matters as team membership, group size and composition, grouping, time-tabling, and so forth. Table XVIII indicates that the mean degree of autonomy over the teams in the sample is 57.43 with a standard deviation of 9.18. The total possible autonomy score was 85--a score which would indicate an exceptionally high degree of team autonomy.

Degree of Authority Structure

"Authority Structure", as a criterion measure, was designed to measure a salient feature of the structure of and

relations between teaching teams. The criterion purports to measure the extent to which the team has become internally structured and functionally specialized. Four items in Part II of the questionnaire were designed to provide a measure of this aspect, with a total possible score of 20 indicating a high degree of authority hierarchization within the team structure.

As can be seen in Table XVIII, the teaching teams in western Canada had a mean degree of "authority structure" of 11.32 (out of a possible 20), and a standard deviation of 2.59. This indicates a moderate degree of internal structure within the majority of the teams.

Team Coordination

The final team variable to be investigated in Part II of the questionnaire was that of "degree of coordination". This criterion is based on the scoring of eight items which purport to differentiate among team teaching situations on the basis of the amount of coordination within and between teams as imposed by the hierarchy of the school itself. The total possible score is 40, a score which would indicate a very high degree of coordination within the team setting.

The mean degree of coordination over all the teaching teams, as demonstrated in Table XVIII is 26.62. The standard deviation was found to be 3.29 for this variable.

IV. SUMMARY

This chapter describes the characteristics of the principals, settings, and teaching teams in the sample by presenting the mean and standard deviation of each of the variables used in the study. It also includes a description of some of the underlying reasons for the choice of the variables used in the study, and a clarification of meanings attached to the variables themselves.

TABLE XVIII
 MEANS AND STANDARD DEVIATIONS FOR THREE
 CRITERION MEASURES
 (N = 77)

Variable	Means	S.D.
Team Autonomy	57.43	9.18
Team Structure	11.31	2.59
Team Coordination	26.62	3.29

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CHAPTER VI

PREDICTION OF ADOPTION OF TEAM TEACHING

The solution of two basic problems constitutes the major purpose of this research. One problem was to determine the relationship between a set of predictor variables, descriptive of characteristics of school principals, and two indices of innovativeness (time and extent of adoption of team teaching). The second problem was to determine the relationships between a set of predictor variables and three criteria, descriptive of the nature of the teaching teams.

Although the data analysis was basically dual in nature, two and three sub-problems, respectively, were associated with the two major problems. As a result, the data analysis is, in effect, five-fold. The five distinct sections in the analysis are designated Problems I(a) and I(b), and Problems II(a), II(b) and II(c).

The purpose of this chapter is to present the results of the analyses described above, performed as described in Chapter III.

I. PREDICTORS OF TIME OF ADOPTION

The means and standard deviations for each of the nine predictor variables (described in Chapters III and V)

are reported in Table XVI (Chapter V). Included in this table, as well, are the mean and standard deviation for the criterion of "time of adoption". These are the variables used in solving Problem I(a).

Table XIX presents the intercorrelations among the predictor variables and the criterion I_1 (Time of Adoption) used in Problem I(a). Of the 45 correlation coefficients, 21 were significant at the .05 level, but only two were between predictor variables and the criterion. A two-tailed test was used because of the lack of certainty about the directionality of some of the hypothesized relationships. Perusal of Table XIX reveals that two predictor variables (both sub-scales of the P.R.O. Scale) were negatively related to time of adoption (i.e. principals' orientation towards the profession and toward a notion of competency based on knowledge).

The indication, then, is that in the schools where principals were more highly oriented towards the aspects of professionalism ("professionalism" is used here in Corwin's sense of the term) noted above, team teaching was adopted later than in schools whose principals were not so highly oriented. None of the other predictors were significantly related to "time of adoption". Thus, except for the two criteria mentioned above, all the null hypotheses were accepted. In these two cases, the alternate hypotheses were accepted.

TABLE XIX

INTERCORRELATIONS AMONG PREDICTORS AND TIME OF ADOPTION

N = 78 Principals

	Total Prof.	Self- Opinion	Insider- Outsider	Client	Prof.	Know.	Autonomy	Human Res.	Material Res.	Time of Adopt.
	1	2	3	4	5	6	7	8	9	10
1	1.00	.38**	.36**	.69**	.72**	.58**	.53**	-.17	-.23*	-.14
2		1.00	.16	.26*	.32**	.13	.30**	-.18	-.13	-.16
3			1.00	.25*	.09	.35**	.29*	-.07	-.15	-.14
4				1.00	.31*	.09	.27*	-.01	-.14	.09
5					1.00	.27*	.16	-.09	-.05	-.23*
6						1.00	.19	-.09	-.18	-.29*
7							1.00	-.29*	-.29*	.12
8								1.00	.37**	.11
9									1.00	.14
10										1.00

$\begin{bmatrix} r.05 \\ r.01 \end{bmatrix}$
 $\begin{bmatrix} > \\ > \end{bmatrix}$
 $\begin{bmatrix} .232 \\ .303 \end{bmatrix}$

*

**

two tailed

TABLE XX

STEP-WISE REGRESSION ANALYSIS OF PREDICTORS
OF TIME OF ADOPTION
N = 78

STEPS	PREDICTORS	$R^2 \times 100^1$	CUMULATIVE PROBABILITY ²
1	Monopoly of Knowledge	8.24	.01
2	Decision Autonomy	11.42	.01
3	Opinion Leadership	14.77	.01
4	Professional Orientation	16.62	.01
5	Client Orientation	18.68	.01
6	Relative Amt. Material Resources	20.92	.01
7	Insider-Outsider	21.97	.01
8	Relative Amt. Human Resources	22.32	.02
9	Total Prof. Score	22.32	.03

1. $R^2 \times 100$ expresses the percentage of variance accounted for by each predictor as it is added to the regression function.

2. Level of significance associated with F test

$$\left(F = \frac{\text{MS Regression Variance}}{\text{MS Error Variance}} \right)$$

Table XX contains the results of the step-wise regression analysis for Problem I(a), as well as the per cent of variance accounted for by the squared multiple regression coefficient and the associated probability. In terms of prediction, the best single predictor is the principal's orientation toward competence based on a monopoly of knowledge, followed by his orientation toward professional autonomy and his self-estimated opinion leadership in that order. Examination of the table reveals that the three predictor variables noted above, combined with the remaining two P.R.O. sub-scale predictors, the relative amount of material-resource allocation, and principal origin are significant in combination at the .01 level. Thus, despite the fact that only two predictors are significantly correlated with the criterion, a combination of these predictors (with the notable exception of the "total professional" score) is significantly correlated (multiple R) with time of adoption. As a result, the null hypothesis that $R^2 = 0$ was rejected, for the first seven steps, at the .01 level of significance.

II. PREDICTORS OF EXTENT OF ADOPTION

Table XVII (Chapter V) presents the means and standard deviations of the nine predictor variables and the criterion of "extent of adoption" (I_2) used in solving Problem I(b). Table XXI contains the results of the cor-

relational analysis. A glance at Table XXI reveals that although 19 of the 45 correlation coefficients were significant, none were between the predictors and the criterion. These results did not present sufficient evidence for the rejection of the "extent of adoption" null hypotheses. Thus, the null hypotheses that $r = 0$ were all accepted.

Results of the step-wise regression analysis, percentage of variance accounted for, and associated probability for Problem I(b) are presented in Table XXII. As can be seen in Table XXII, there is no indication that any significant relationships exist between the predictor variables and the criterion, leading to the acceptance of the null hypotheses that $R^2 = 0$.

III. PREDICTORS OF TEAM AUTONOMY

Table XXIII, presents the means and standard deviations for the six predictor variables and the criterion variable, "degree of team autonomy", described in Chapters III and V, and analysed in Problem II(a). As well, the table contains the means and standard deviations for the two other criterion variables designated "degree of team structure", and "degree of team coordination", analysed in Problems II(b) and II(c) respectively.

Similarly, Table XXIV consists of an intercorrelation matrix for the six predictor variables and all three criterion variables used in Problem II. This intercorrelation

TABLE XXI

INTERCORRELATIONS AMONG PREDICTORS
AND EXTENT OF ADOPTION (I_2)

N = 77

	Total Prof.	Self- Opinion Ldrship	Insider- Outsider	Client	Prof.	Know.	Autonomy	Human Res.	Material Res.	Extent
1	1	2	3	4	5	6	7	8	9	10
1	1.00	.39**	.37**	.69**	.72**	.58**	.53**	-.18	-.24*	-.01
2		1.00	.16	.28*	.34**	.13	.31**	-.17	-.12	.12
3			1.00	.25*	.11	.35**	.29*	-.07	-.15	.13
4				1.00	.29*	.09	.26*	-.02	-.15	.19
5					1.00	.27*	.15	-.11	-.06	-.11
6						1.00	.19	-.09	-.18	-.15
7							1.00	-.29*	-.29*	.16
8								1.00	.37**	-.03
9									1.00	-.18
10										1.00

101

$\left[\begin{array}{l} r_{.05} \geq .232 \\ r_{.01} \geq .303 \end{array} \right] \begin{array}{l} * \\ ** \end{array}$

two tailed

TABLE XXII

STEP-WISE REGRESSION ANALYSIS OF PREDICTORS
OF EXTENT OF ADOPTION (I_2)
N = 77

STEPS	PREDICTORS	$R^2 \times 100^1$	CUMULATIVE PROBABILITY ²
1	Client Orientation	3.52	.09
2	Total Prof. Score	2.36	.06
3	Dec. Autonomy	13.18	.02
4	Relative Amt. Material Resources	15.54	.02
5	Insider-Outsider	16.74	.02
6	Prof. Orientation	18.43	.02
7	Monopoly of Knowledge	25.53	.003
8	Opinion Leadership	25.95	.006
9	Relative Amt. Human Resources	25.95	.01

1. $R^2 \times 100$ expresses the percentage of variance accounted for by each predictor as it is added to the regression function .

2. Level of significance associated with F test

$$F = \frac{\text{MS Regression Variance}}{\text{MS Error Variance}}$$

matrix contains a total of 36 correlation coefficients of which only 10 are significant at the .05 level. Further, of the significant correlations, only three are found between the predictor and criterion variables.

The intercorrelations described above show that two predictors are positively correlated with the degree of team autonomy. The two predictors are the principal's orientation toward decision-making autonomy, and principal's orientation toward the school's clients (in this case pupils). Since the level of significance was set at .05, the results present sufficient evidence for rejection of the null hypotheses that $r = 0$ in these two cases. For all other predictors the null hypotheses were accepted.

The step-wise regression analysis for prediction of team autonomy again indicates the importance of principal orientation toward clients and decision-making autonomy. The results of the analysis are presented in Table XXV. In combination, the two variables identified as significant in the intercorrelation matrix have a combined cumulative probability of error in rejecting the null hypothesis of .009. Interesting, too, is the observation that the combination of these two predictors with the "time of adoption" and "extent of adoption" predictors resulted in a combined cumulative probability of error of .035, well below the .05 level. The null hypotheses that $R^2 = 0$ was thus rejected for individual and combined steps up to and including step 4.

TABLE XXIII

MEANS AND STANDARD DEVIATIONS FOR SIX PREDICTORS
AND THREE CRITERION VARIABLES
USED IN PROBLEM II
N = 77

Variable	Means	S.D.
I ₁ (Time)	3.29	2.09
I ₂ (Extent)	12.16	11.33
Orient. to Prof.	27.68	2.75
Orient. to Knowledge	12.18	2.18
Orient. to Autonomy	7.69	1.57
Orient. to Clients	9.29	2.73
Team Autonomy	57.43	9.18
Team Structure	11.31	2.59
Team Coordination	26.62	3.29

TABLE XXIV

INTERCORRELATION MATRIX FOR SIX PREDICTORS
AND THREE CRITERION VARIABLES (PROBLEM II)

N = 77

	<u>Predictors</u>		<u>Criterion Variables</u>			
	I ₁ (Age)	I ₂ (No. of Sub-units)	Prof.	Monop.	Dec. Auto.	Client Team Auto. Structure Coordination
I ₁ (age)	1.00	.021	-.256*	-.289*	.116	.077
I ₂ (No. of Sub-units)		1.000	-.111	-.150	.157	.011
Prof.			1.000	.269*	.153	-.074
Monop.				1.000	.197	.027
Dec. Auto.					1.000	-.076
Client						.130
Team Auto.						.395**
Team Struc.						.401**
Team Coord.						1.000

r.05 — .232
r.01 — .303

*
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two tailed

IV. PREDICTORS OF TEAM STRUCTURE

The results of the analysis of Problem II(b) are presented in Table XXIV. Only the "time of adoption" predictor (I_1) correlates significantly with the measure of team structure. And this correlation is significant at the .01 level. No other predictor was significantly correlated with the criterion. Examination of Table XXIV, however, will indicate that the "extent of adoption" predictor (I_2) approached significance at the .05 level in a negative direction. The results of the analysis do not present evidence for the rejection of the null hypotheses that $r = 0$ in any but the predictive relationship described above. In this one case the null hypotheses is rejected at the .01 level. These findings indicate that the "time of adoption" (or "age" of the teaching team) variable may have some important implications for organizational research. The implications will be discussed in the final chapter.

Results of the step-wise regression analysis of the prediction of "degree of team structure" are presented in Table XXVI. Comparison of Tables XXIV and XXVI reinforces the observation that "time of adoption" is positively and significantly correlated with the team structure criterion. It is interesting to note, as well, that the "extent of adoption" variable, although negatively and not significantly

TABLE XXV

STEP-WISE REGRESSION ANALYSIS WITH TEAM AUTONOMY
AS CRITERION AND SIX PREDICTOR VARIABLES

N = 77

Steps	Predictors	Cumulative $R^2 \times 100$	Probability
1	Client Orientation	8.89	.008
2	Dec. Making Autonomy	11.91	.009
3	I ₁ (Time)	12.75	.018
4	I ₂ (Extent)	13.14	.035
5	Professional Orientation	13.35	.064
6	Monopoly of Knowledge	13.35	.111

TABLE XXVI

STEP-WISE REGRESSION ANALYSIS WITH TEAM AUTHORITY STRUCTURE
AS CRITERION AND SIX PREDICTOR VARIABLES
N = 77

Steps	Predictors	Cumulative $R_2 \times 100$	Probability
1	I_1 (Time)	15.39	.0007
2	I_2 (Extent)	21.03	.0003
3	Professional Orientation	22.62	.0005
4	Dec. Making Autonomy	23.40	.0009
5	Monopoly of Knowledge	23.46	.001
6	Client Orientation	23.49	.004

correlated with team structure in the bivariate analysis, when combined with "time of adoption" produces a value of R^2 which is significant at the .0003 level. In fact, the probability level for all six predictors is lower than .01. The null hypothesis that $R^2 = 0$ is thus rejected for all six predictors in combination.

V. PREDICTORS OF TEAM COORDINATION

The correlation coefficients obtained from analysis of relationships between the six predictors and the criterion labelled "degree of coordination" (that is, the analysis of Problem II(c)) are presented in Table XXIV. No significant correlations are noted between predictors and criterion; in fact, none even approach significance. Therefore, all null hypotheses that $r = 0$ are accepted.

The regression analysis of Problem II(c) is reported in Table XXVII. The results of the regression analysis support those of the bivariate analysis; the probability of error for all steps and all combinations of steps is greater than .05. Further, the probability of error in rejecting the null hypothesis is greater than .25 and the null hypothesis that $R^2 = 0$ is therefore accepted.

TABLE XXVII

STEP-WISE REGRESSION ANALYSIS WITH DEGREE OF COORDINATION
AS CRITERION AND SIX PREDICTOR VARIABLES

$N = 77$

Steps	Predictors	Cumulative $R_2 \times 100$	Probability
1.	Client Orientation	1.71	.255
2.	Professional Orientation	3.13	.307
3.	Dec. Making Autonomy	4.26	.362
4.	Monopoly of Knowledge	4.72	.475
5. I	I_1 (Time)	5.18	.569
6.	I_2 (Extent)	5.18	.669

VI. SUMMARY

With a correlational and step-wise regression, it was found that two predictor variables--principal's orientation to the profession and to competency based on a monopoly of knowledge--were negatively correlated with the criterion designated "time of adoption". Step-wise regression revealed that the four Professional Role Orientation scores combined with the opinion leadership score were significant in combination.

There were no significant relationships between the predictors and "extent of adoption" in either correlational or step-wise regression analysis.

Positive correlations were found between the "team autonomy" criterion and two predictor variables: principal's orientation toward decision-making autonomy and toward the school's clients (i.e. the pupils). As well, step-wise regression revealed that the two significant predictors noted above, when combined with the two "adoption" criterion (i.e. time and extent) were predictive of the criterion.

"Time of adoption" was the only predictor significantly correlated with the criterion of team structure. In combination, however, with "extent of adoption" and the four P.R.O. sub-scales, a value of R^2 was found which was significant at the .0003 level.

There were no significant correlations between the

With a representative and appropriate selection of
 data from the published literature, it is possible to
 find in the literature and to summarize them in a manner
 of knowledge which should be helpful to the student
 designated "State of the Art". However, it is not
 that the first fundamental rule of research, which is
 with the original literature, must be followed in the
 literature.

There are no significant relationships between the
 literature and the state of the art, it is not
 an over-simplified analysis.

Relative contributions have been made in the
 literature, and the literature is not a simple
 collection of facts, but a collection of facts and
 school's efforts to do this, in fact, the
 literature revealed that the state of the art is
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There are no significant relationships between the

predictors and the "team coordination" criterion. Even when combined, the predictors produced a combined probability of error greater than .25.

CHAPTER VII

SUMMARY, CONCLUSIONS, AND SUGGESTIONS

FOR FURTHER RESEARCH

The purposes of this study were to survey the extent and nature of the adoption of the team teaching innovation in western Canada, and to investigate and analyse the characteristics of adopter principals, situational factors within the team settings, and characteristics descriptive of the nature of the teams themselves. The purposes were to provide both a status study of team teaching in western Canada and an investigation and analysis of the relationships existing between certain selected predictive and criterion variables.

This chapter contains a summary of the major findings of the study, a presentation of some conclusions, and suggestions concerning possibilities for further research.

I. SUMMARY OF THE STUDY

Questionnaires were mailed to 248 superintendents and inspectors of schools in western Canada. The respondents were asked to identify schools in which some form of team teaching operation was underway during the school year 1965-66. Of those surveyed, 185 (75%) replied; they identified 112 schools. The principals of these 112 schools were

mailed questionnaires and 93 (83%) responded. Missing information (and several cases of faulty identification on the part of the original respondents) resulted in the final sample being reduced to 78 schools--70% of those originally identified. The sample thus consisted of 78 schools that had adopted some form of team teaching. No non-adopter schools were included in the sample.

The Status Study

One major purpose of this study was to identify and describe the teaching teams employed in schools in western Canada with a view toward determining the status of the practice in this section of the country. Tables II to XV in Chapter IV present the data relevant to this investigation. A total of 215 teaching teams were identified (for an average of 2.8 per school). Information concerning gradedness, subject-matter areas, extent, size, and setting of teaching teams in western Canadian schools was tabulated.

A general overview (using strictly nominal measures of central tendencies) was designed to provide a sketch of what is termed the "typical teaching team" (p. 79). The majority of teaching teams in western Canada are single-grade, single-subject, two- (or three) teacher teams employed chiefly in the secondary schools in the instruction of subjects within the curriculum areas dealing with the humanities.

Prediction of Adoption of Team Teaching

Seven predictor variables identified in research into the adoption and diffusion of educational innovation--dealing with characteristics of "early adopters"--were analysed, along with two additional "situational variables", for their predictive value in relation to time and extent of adoption of team practices. As well, six predictor variables were selected and analysed to determine their usefulness in the prediction of the nature of the teaching teams so-adopted. The latter investigation used as criteria three measures descriptive of the teams: degree of autonomy; degree of authority structure; and, degree of coordination. These variables were designed to measure three salient aspects of the structures of (and relationships between) teaching teams, as outlined by Olds(5, p.104).

Both correlational and step-wise regression analyses were employed to determine the nature of the relationships outlined above. That is, two distinct analyses were made for the relationships between the various predictors and the five criteria selected for inclusion in the investigation.

No significant positive relationships were found between the individual predictor variables and the criterion of "time of adoption". Two predictors, however, were negatively correlated with the criterion at the .05 level:

EXPERIMENTAL DESIGN

The experimental design was a 2 (Sex) x 2 (Age) x 2 (Condition) factorial design.

The subjects were 40 children, 20 boys and 20 girls, aged 10-12 years.

The children were divided into four groups of 10 children each.

The first group was the control group, the second group was the

experimental group, the third group was the control group, and the

fourth group was the experimental group. The children were

assigned to the groups by a computer program. The children were

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principals' orientation toward the profession and toward a sense of competence based on knowledge. Step-wise regression analysis revealed the latter to be the best single predictor of "time of adoption". As well, the two predictors which were negatively correlated with "time of adoption" using bivariate methods, when combined with orientation toward professional decision-making autonomy, orientation toward pupils (clients), degree of opinion leadership, relative amount of material resources, and principal origin, produced a multiple R significant at the .01 level.

Thus, although the four sub-scales of the Professional Role Orientation Scale are significant in combination at the .01 level, and although two of them have an individual though negative correlation with the criterion at the .05 level, the total professional score has the least predictive value when combined with the other predictors (.03 probability of error). Similarly, the second "weakest" predictor, in terms of its unique predictive power is the "Relative Amount of Human Resource Allocation" dichotomy.

Neither the correlational nor step-wise regression analyses revealed any significant relationships between the selected predictors and the criterion designated "Extent of Adoption".

Two of the P.R.O. sub-scale scores were found to be predictive (.05 level) of the criterion "Degree of Autonomy".

These were (1) the principals' orientation toward the pupils (clients) and (2) principals' orientation toward professional decision-making autonomy. As well, in combination these two predictors were significantly correlated with the criterion and were the first and second best predictors, respectively, of the six predictors. "Time" and "Extent" of adoption were the third and fourth best predictors, and, combined with the first two predictors, produced a probability of error level of .035.

Only one predictor, "Time of Adoption" was significantly and positively correlated with the criterion labelled "Team Structure". This correlation was significant at the .01 level. "Extent of Adoption", as a predictor, approached significance in a negative direction, however, at the .05 level of significance.

Step-wise regression analysis produced a value of R^2 significant at the .0007 level for "Time of Adoption", and at the .004 level for a combination of all six predictors: time of adoption, extent of adoption; and principal orientations (or attitudes) toward (a) the profession, (b) decision-making autonomy, (c) competence based on monopoly of knowledge, and (d) the clients.

Neither correlational nor step-wise regression analyses produced any significant relationships between the criterion "Team Coordination" and the six predictor variables:

time of adoption, extent of adoption and the four P.R.O. sub-scale scores.

II. CONCLUSIONS

Of the thirty-six research hypotheses stated for this study, only five were supported by the results of the bivariate correlational analyses. Further, two of these relationships were significant in a negative direction. Taken in combination, seventeen of the predictor-criterion relationships were of a significant nature. Several conclusions may be drawn from the results of this research study.

Discussion

Conclusions based on a combination of the results of the bivariate and multivariate analyses must, of course, be chiefly tentative in nature. Never-the-less, several pertinent implications appear to underlie not only the general lack of support for the research hypotheses (many of which stemmed from previous research concerned with the adoption and diffusion of innovation) but also the few significant predictor-criterion correlations which have been established.

The purpose of this section is to discuss the tentative conclusions and pertinent implications resulting from the research reported in previous chapters. Since even multivariate analyses failed to support the majority of the research hypotheses, however, it seems only proper to suggest,

along with the conclusions, some possible explanations for the failure of the research to support the hypotheses fully.

The adoption of team teaching. The findings of this study indicate that the decision to adopt team teaching is not a direct result of the characteristics of the principals studied here. At the same time, however, there appears to be an indication that some of the characteristics investigated (notably professional attitudes, opinion leadership, and origin) may be related to time of adoption. Hypotheses based on this indication would have to be more precise than those stated for this study and would require improved measuring instruments.

Similarly, it seems safe to conclude that the decision to adopt team teaching in western Canadian schools is not a direct function of such situational variables as human and material resource allocations. This finding supports Olds' contention that "...in virtually all cases where a team is introduced into a school system, it is fitted into the existing conditions of that system(5, p. 106)."

Some interesting speculations arise from the finding that the principals' characteristics are not as influential in the time and extent of adoption of team teaching as was hypothesized. First, the emerging "changing role" of the principal, as discussed in Chapter II, may involve a change in a direction which places the principal in a role which is

more concerned with establishing the "climate" for change than with initiating the change itself. A second speculation, flowing from the first, is that perhaps the principals in whose schools team teaching has been adopted are those, who, in Ingram's words, permit and allow "...good ideas for improvement to flow from the staff as well as from the administration(3, p.140)." Such a principal would necessarily have to be highly oriented toward his colleagues (teachers) in the sense that he would have to respect their competence in order to allow them to participate in leadership acts such as the initiation of innovation.

The two significant negative correlations between aspects of the principals' "professionalism" (in Corwin's use of the term) and the "time of adoption" criterion are, in a sense, supportive of the foregoing speculations. The two predictors involved here were the principals' orientation toward the profession and colleagues and orientation toward a notion of competency based on monopoly of knowledge. Principals who were highly oriented toward these two aspects of professionalism tended to be found in schools which adopted team teaching at a later date than in the schools in which principals were less highly oriented.

Thus, one might speculate that a high degree of orientation toward one's colleagues (implicit in both aspects of "professionalism" investigated here) may lead a principal

to view the introduction of team practices as a threat to teacher independence and to the norm (apparently held by the teachers as well) that the self-contained classroom under a competent teacher is a satisfactory system of organization. The principal, as a molder of "climate" rather than as an innovator, may thus consider it best to wait for some indication of staff initiative in the adoption process.

All of the conclusions, implications and speculations stemming from the research involving the adoption of team teaching are, of course, dependent upon the discriminatory power of the indices of innovation used (i.e. "time" and "extent" of adoption). In addition, all of the principals in the study were "adopters". More precise conclusions and implications would have to be based on a comparison of adopters and non-adopters--an investigation beyond the scope of this study.

Similar research recently conducted on the adoption of educational innovation in Canada suggests a further limitation inherent in the interpretation of the findings of the present research. Hemphill notes, for instance, that:

It may well be that the unique aspects of educational organizations...are such that the generalizations made from...other fields of study are not applicable to education(2, p.126).

The point is that the process of adoption and diffusion of innovations, such as that proposed by Rogers(6, p.162) and

others, may be inappropriate where this particular innovation is concerned. For instance, the large geographical distances and relatively sparse population characteristic of western Canada may militate against the designation of the area (or even the individual province) as a "social system"--an aspect carefully defined and important in the adoption and diffusion research tradition.

Autonomy of teaching teams. Two of the sub-scale scores on the P.R.O. Scale were found to be significantly correlated with the criterion of "Team Autonomy". The two aspects of professionalism significant in this relationship were principal orientation toward professional, decision-making autonomy and principal orientation toward clients (pupils). Further, although the two variables were significant at the .05 level in the bivariate analyses, their importance as predictors of team autonomy is reinforced and emphasized when one considers the step-wise regression analyses (i.e. in combination, the probability of error in rejecting the client-orientation null hypothesis was .009). When the "time" and "extent" of adoption criteria were added to the regression equation, the probability level remained well below .05.

The results cited above tend to support the speculation concerning the role of the principal in terms of "climate" suggested in the interpretation of the analyses

dealing with the adoption of team teaching. That is, that the principal's attitudes toward professional autonomy and toward the individual pupil (like his attitude toward his profession and toward colleague competence) are important factors in the establishment of the "climate" of the school. Thus, there is some indication that team autonomy may have some relationship to principal orientation toward professional autonomy in general.

The step-wise regression analyses also raise some interesting speculation concerning the importance of "time" and "extent" of adoption variables in relation to team autonomy. Since these two variables were not significant individually, but were significant in combination with the two aspects of professionalism outlined above, the indication is that the "age" of the teaching team and the extent of the school's commitment to the innovation (i.e. the number of teams employed) are related to the amount of autonomy enjoyed by the team. The relationship becomes significant, however, only when associated with certain kinds of professional attitudes on the part of the principal. Some scholars, such as Maccia(4, p.6) would agree with the indication here that with increasing age and proliferation of teaching teams, the degree of autonomy associated with the teams also increases. The importance of the attitudes of the organizational head of the system, as described

in this study, in connection with the increased autonomy through "age" and proliferation of sub-units (teams), however, may have some ramifications for system structure and developmental research.

Structure of teaching teams. If there is one conclusion which can be drawn from the present research, it is that team organization is directly associated with team "age", and that the team organizational patterns are, in fact, evolutionary in nature. As was pointed out in the previous section, team "age" is also correlated (although to a lesser extent) with team autonomy. Thus, in general terms, one might conclude that the longer the teams have been in operation the more internally structured and the more operationally autonomous they become.

The existence of a negative correlation, which approaches significance, between "extent" of adoption and team structure is difficult to interpret. Directionality of the relationship is, of course, important. Although the variable "Extent of Adoption" is negatively correlated with the criterion in the bivariate analysis, in combination with the "Time of Adoption" variable, it produces a value of R^2 significant at the .0003 level. The negative correlation may be explained in part by the observation that as the teams proliferate (that is, as the school becomes more committed to the innovation through increasing the

the first thing I noticed when I stepped out of the car.

The second thing I noticed was the smell of the air.

It was a mix of the fresh air of the morning and the stale air of the city.

I took a deep breath and felt a sense of relief.

The first thing I noticed when I stepped out of the car.

The second thing I noticed was the smell of the air.

It was a mix of the fresh air of the morning and the stale air of the city.

I took a deep breath and felt a sense of relief.

The third thing I noticed was the sound of the city.

It was a mix of the honking of horns and the chatter of people.

I took a deep breath and felt a sense of relief.

The fourth thing I noticed was the sight of the city.

It was a mix of the tall buildings and the narrow streets.

I took a deep breath and felt a sense of relief.

The fifth thing I noticed was the feel of the city.

It was a mix of the rough pavement and the smooth sidewalks.

I took a deep breath and felt a sense of relief.

The sixth thing I noticed was the taste of the city.

It was a mix of the salty air and the sweet smell of the flowers.

I took a deep breath and felt a sense of relief.

The seventh thing I noticed was the sound of the city.

It was a mix of the honking of horns and the chatter of people.

I took a deep breath and felt a sense of relief.

The eighth thing I noticed was the sight of the city.

It was a mix of the tall buildings and the narrow streets.

number of teams) the parts (individual teams) may tend to become almost synonymous with the whole (i.e. the school as a whole). Thus, as the extent increases, the structure of the teams becomes an aspect of the total school organization involving intercommunications and interconnections of authority, planning, and so forth between members of various teams, teachers who may be members of two or more teams, other staff members, and administrators. This suggestion, is, of course, highly speculative in nature. Once again, more precise conclusions would require more precise research hypotheses and better instruments.

The overall result of the combination of the two variables, "age" and "extent" is the production of an increase in team internal structure directly proportional to team "age", and a decrease in internal structure inversely proportional to the "extent" of adoption. Thus, what may be true about the relationship between "extent" and team autonomy is not also true of "extent" and team structure.

The P.R.O. sub-scale scores were, like the "extent" variable, negatively related to the criterion of team structure, although not significantly. All five of these variables combine with team "age" to predict team authority structure. Since the probability level for the combined predictors is less than .01, there is some indication that the teaching teams in schools in which the principal is

more "professionally" oriented will be less structured than in schools where the principal is less oriented towards the aspects of professionalism studied here.

Coordination of teaching teams. Bivariate correlation analyses of the predictors and criterion "coordination of teaching teams" revealed no significant relationships in either negative or positive directions. Little speculation is possible in connection with this finding since an examination (a posteriori) of the relevant section of the questionnaire reveals that a degree of ambiguity associated with some of the items may have been responsible, at least partially, for the results being a function of the instrumentation rather than the actual situation. The questionnaire is reprinted in Appendix A. Conversely, the actual relationships between the criterion and predictors may be accurately reflected in the results as reported. Since the step-wise regression analysis merely confirms the non-significant results of the correlational analyses, suffice it to say that no significant relationships were found between predictors and criterion.

Whether or not the validity of the measurement of the "coordination" criterion can be questioned, researchers who wish to measure similar variables in connection with team organization may find it useful to peruse the questionnaire developed for this study. In particular, a

comparison of Part II of the questionnaire (Appendix A) with the Olds' Taxonomy on which it is based (Appendix B) demonstrates one of the underlying problems of this study--that of gaining a picture of team organization in terms of Olds' Taxonomy. In any case, the limitations inherent in the attempt were apparent at the outset, and nothing more than "face" validity was claimed for the items in Part II of the questionnaire.

III. SUGGESTIONS FOR FURTHER RESEARCH

Several future research possibilities are suggested by the results of this study. These possibilities arise in both the status study findings and the results of the predictive analyses. The areas involved are (1) team teaching, and (2) the adoption of educational innovations.

Team Teaching

The vast number of articles and reports on team teaching might indicate that the research possibilities in the area are exhausted. A close examination of the literature, however, demonstrates that such is not the case--if only because of the extent of disagreement concerning the practice. Similarly, the results of the present study, particularly those associated with the status study, point out a number of directions in which research has yet to be undertaken.

Subject-matter areas. As indicated in Chapter IV, the majority of teaching teams in western Canada are operative in subject-matter areas which may be defined as belonging to the humanities aspect of the curriculum. Little or no research has been done concerning the choice of subjects in which teaching teams are employed, and the reasons underlying such choices. One might speculate that research into the structure of the various disciplines and the relationships between the structures (as per Bruner) and adaptability of the team approach to teaching would be instructive.

Evaluation of team teaching. Such research as that proposed above presupposes some method of evaluation of the team approach. There has been little or no research which has examined empirically the advantages or disadvantages of team teaching over traditional methods. With over two hundred teaching teams operating in western Canada, and more in the offing, the situation would appear ideal for longitudinal, comparative studies designed to evaluate the efficacy of teaching teams, in terms of such criteria as goal achievement, staff morale, and so forth.

Gradedness of team teaching. The majority of teaching teams in western Canada are being employed in the secondary schools (i.e. grades seven to thirteen). There may be several reasons for this fact such as the general occurrence of departmentalization in the upper grades (most of the schools in the sample reported at least partial departmental-

ization). Also, educators may feel that subject areas are more easily adapted to the team approach in the higher grade levels. Too, many of the principals contacted expressed the opinion that the success of their team operations depended to a large extent upon the pupils accepting a large measure of responsibility for the achievement of their own learning goals. This may indicate a belief on the part of the educators that older students receive the greatest benefit from the team approach. All of these factors and their interrelationships are conducive to research.

The Adoption of Educational Innovations

The predictive analyses undertaken in this study, and their results, suggest, in particular, two areas in which research could usefully be considered. These areas are (1) the principal and innovation, and (2) school "climate" and innovation.

The principal and innovation. A basic idea in the initiation of this study was that the principal, because of his changing role, was in the process of becoming an important influencer in the adoption process. The notion was that the principal who is innovative will exhibit the characteristics of the innovative superintendent as identified by Carlson et.al. (1, p.55). In general, the research hypotheses relating to this aspect of the study were not supported. The fact that the principal characteristics selected for

study here were not functionally related to the adoption decision for team teaching indicates the need for further examination of the principal's role in the adoption process. In particular, certain aspects of professional orientations on the part of the principal, while not significantly related to time and extent of adoption of team teaching, can be said to be associated with the adoption process. More precise research hypotheses and more refined instruments are needed to clarify these relationships.

School "climate" and innovation. The results of the present research demonstrate that although the characteristics of the principals studied, while not directly functional in the adoption decision, were of importance within other contexts. In particular, the principal's attitudes appear to be worthy of investigation insofar as they are concerned with organizational structure, the working relationships and the decision-making process within the school.

To conclude, it would appear that a good deal more research into all aspects of team teaching and educational innovation--particularly longitudinal and comparative studies, respectively,--is required before we can state with any assurance either the merits of team teaching or the factors related to the adoption decision. Research into these two areas, in particular, would be valuable.

This research, being both exploratory and descriptive

in nature, has provided some basic understandings concerning the nature of team teaching and its adoption and diffusion throughout western Canadian schools. Such understandings are important in view of the rapid implementation of teaching teams in our schools.

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UNIVERSITY OF ALBERTA
Faculty of Education
Department of Educational Administration
Edmonton, Alberta
Canada

Dear Sir:

The practice of team teaching appears to be one of the most rapidly spreading innovations on the current educational scene. Several recent conferences of school administrators in Western Canada have focussed on this newer form of school staff organization. For this reason several members of the Department of Educational Administration of the University of Alberta have assumed the responsibility of determining the extent to which team teaching has been adopted into educational practice. It is in this endeavor that we are soliciting your assistance.

Would you please indicate, on the accompanying sheets, the schools under your jurisdiction that have adopted some form of team teaching, and would you also provide us with a tentative overall evaluation of the success of each venture. The directions on the form explain the type and form of evaluation being sought.

It is our intent, upon receipt of your reply, to communicate directly with the principals of the named schools so that we may learn more of the form, type, extent, and success of each specific teaching team. The questionnaire to be sent to the principals will be short, straightforward, and easily completed, and should not create a burden for the principal.

It is our belief that the catalogue and taxonomy of team teaching that will be developed from the results of this endeavor will be of real value to all practicing administrators.

Thank you for your cooperation and contribution.

Sincerely yours,

Dr. D.A. MacKay
Dr. J.E. Seger

Name of District _____

Report Completed By _____

Position _____

Date _____

Please complete the above information on only the first sheet of your reply.

1. (a) Name of School _____

(b) Address of School _____

(c) Name of Principal _____

(d) Evaluation of Team Teaching	better than prior practice
	inferior to prior practice
	no better or worse than
	prior practice
	no opinion at this time

NOTE: The evaluation applies to the general practice of team teaching in this school; if more than one team is in operation, the evaluation then becomes a summary or average of all team teaching in the school.

2. (a) Name of School _____

(b) Address of School _____

(c) Name of Principal _____

(d) Evaluation of team teaching	better than prior practice
	inferior to prior practice
	no better or worse than
	prior practice
	no opinion at this time

3. (a) Name of School _____

(b) Address of School _____

(c) Name of Principal _____

(d) Evaluation of team teaching	better than prior practice
	inferior to prior practice
	no better or worse than
	prior practice
	no opinion at this time

UNIVERSITY OF ALBERTA
Faculty of Education
Department of Educational Administration
Edmonton, Alberta
Canada

May 26, 1966

Dear Sir:-

The name of your school has been sent to us by your superintendent as a result of a preliminary survey we began a few months ago. We are attempting to gather information regarding the extent to which team teaching has been adopted in the four western provinces.

Since you and your staff have some experience with team teaching, we are asking you to complete the enclosed questionnaire and return it to us as soon as possible. A return envelope is enclosed for your convenience.

We intend to analyze the responses from the more than one hundred schools which have been identified as having some form of team teaching, and to prepare a report of our survey.

Your cooperation in this project is solicited. In completing the questionnaire, would you please write in any comments which you think are required in order to clarify your responses.

Thank you for your assistance.

Yours sincerely,

D.A. MacKay
Associate Professor

J.E. Seger
Associate Professor

UNIVERSITY OF ALBERTA
Faculty of Education
Department of Educational Administration
Edmonton, Alberta
Canada

Dear Sir:-

RE: Team Teaching Survey

We have now received most of the replies to our questionnaires on team teaching. It is realized that this is a very busy time for principals, but, as we hope to survey the extent of team teaching in the four western Canadian provinces, and publish the findings, it would be appreciated if you would reply at your earliest convenience.

Should you require another questionnaire, please advise, and we will forward it by return mail. If you have already mailed your reply, please accept our sincere thanks for your cooperation.

Sincerely yours,

D.A. MacKay
Associate Professor

DAM;pk

Team teaching questionnaire

TO THE PRINCIPAL: Please give this questionnaire to the team teaching team you are studying. It should be completed by the team members.

Page One

1. What grade are you teaching? (If you are teaching more than one grade, please list all grades.)

TEAM TEACHING QUESTIONNAIRE

1 2 3 4 5 6 7 8 9 10 11 12

Department of Educational Administration

University of Alberta

Edmonton, Alberta

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

2. How many years of experience do you have?

3. How many years of experience do you have in team teaching?

4. How many years of experience do you have in team teaching?

5. How many years of experience do you have in team teaching?

TEAM TEACHING QUESTIONNAIRE

TO THE PRINCIPAL: Please complete all responses asked for on this questionnaire. A stamped, return envelope is provided for your completed questionnaire.

PART ONE

1. What grades are included in your team teaching operation?

Circle the appropriate grade number(s):

1 2 3 4 5 6 7 8 9 10 11 12 13

2. Would you use the spaces below to describe the number of different teams, the subject areas involved, the number of pupils in each team, the number of teachers involved, the percentage (approximate) of the teacher's school day devoted to team teaching operations.

TEAM	SUBJECT AREA	GRADE LEVEL	NUMBER OF PUPILS	NUMBER OF TEACHERS	PERCENTAGE OF TEACHER'S TIME
------	-----------------	----------------	---------------------	-----------------------	---------------------------------

1.

2.

3.

4.

5.

6.

7.

3. Is your school departmentalized?

Check one response: YES _____ NO _____

4. If your school is departmentalized into specific subject specialties, what is the extent of the departmentalization?

Check one response: completely departmentalized _____

More than 50% departmentalized _____

Less than 50% departmentalized _____

5. How many staff members (full-time) does your school have?

Fill in the number: _____

6. How many part-time staff members does your school have?

Fill in the number: _____

7. How many stenographers and/or clerical aides does your school have?

Fill in the number: _____

8. What is the pupil enrolment by grades?

Please fill in the appropriate blanks:

Grade 1 _____ Grade 5 _____ Grade 9 _____

Grade 2 _____ Grade 6 _____ Grade 10 _____

Grade 3 _____ Grade 7 _____ Grade 11 _____

Grade 4 _____ Grade 8 _____ Grade 12 _____

Grade 13 _____

9. Does your school, in your opinion, have more than the usual proportion of human resources (teachers, clerical aides, etc.) provided for the other schools in your system?

Check one response: YES _____ NO _____

10. Does your school, in your opinion, have more than the usual proportion of material and financial support given to the others schools in your system?

Check one response: YES _____ NO _____

11. When was team teaching first introduced in your school?

Fill in: YEAR _____ MONTH _____

12. Do you plan to continue the operation of the team project next year?

YES _____ NO _____

13. Would you list four or five of the goals you see as being achieved by your team teaching operation?

1.

2.

3.

4.

5.

14. Would you describe in a paragraph or two your team teaching operation? (use back of page if necessary)

PART TWO

The following section is designed to measure the degree of autonomy (or span of control), the degree of co-ordination, and the degree of authority structure within existing structural requirements. These are five possible replies to each question. They are:

NONE(N)

LITTLE(L)

MODERATE(M)

CONSIDERABLE(C)

TOTAL(T)

For each question, circle the most appropriate response.

- | | | |
|-----|--|-------------------|
| 15. | How much control does the team exercise over the ways in which its students are grouped? (e.g. heterogeneous or homogeneous grouping). | N L M C T |
| 16. | How much freedom does the team have to <u>vary</u> the grouping procedures for special purposes? (e.g. to re-group for such purposes as the formation of remedial reading groups, etc.) | N L M C T |
| 17. | How much control does the team have over the number of teachers on the team? (e.g. the amount of control the team has over procuring additional teachers if the team considers additional help necessary). | N L M C T |
| 18. | How much control does the team have over the composition of the team in terms of procuring the assistance of non-professional help? | N L M C T |
| 19. | How much control does the team have over the use of available time during the school day for co-ordination and co-operation? | N L M C T |

- | | | | | | | |
|-----|--|---|---|---|---|---|
| 20. | How much control does the team have over its own operation without external supervision? (e.g. to what degree are the team's meetings carried on without the supervision of the principal or some other ranking member of the administration?) | N | L | M | C | T |
| 21. | How much control does the teaching team have over the non-team activities of its members? (e.g. to what degree does the team have control over its member's participation in such activities as system-wide committees, school committees, etc.) | N | L | M | C | T |
| 22. | Within the framework of the provincial curriculum requirements, how much control does the team exercise in establishing its own curriculum goals? | N | L | M | C | T |
| 23. | Within the restrictions imposed by the financial condition of the system and the selection policy already in effect, how much freedom does the team have over the selection of teaching materials? | N | L | M | C | T |
| 24. | How much freedom does the team have in its choice of teaching methods? | N | L | M | C | T |
| 25. | How much control does the team have over the amount of time devoted by team members to the study and development of curriculum and methods? | N | L | M | C | T |
| 26. | How much control does the team have over the allocation of finances and other resources of instruction? (e.g. to what extent is the team allowed to select audio-visual aids for purchase, to make use of additional clerical help to prepare and process necessary materials and so forth?) | N | L | M | C | T |
| 27. | Within the limitations imposed by the size and number of spaces available to the team, how much control does the team exercise over the size and composition of pupil groupings? | N | L | M | C | T |

28. How much control does the team have over the frequency of grouping changes (e.g. to what degree can the team change the size and composition of the groups during the school year?) N L M C T
29. How much control can the team exercise over the time allocation for periods of instruction for the various groups? (e.g. to what extent can the team vary the amount of time day-by-day, which a particular group of pupils spends in a particular subject matter area?) N L M C T
30. How much control does the team have over space allocation? (e.g. within the structural limitations of the school plant, to what extent is the team able to determine and allocate particular spaces for its activities?) N L M C T
31. How much control does the team have in allocating teachers for specific activities? (e.g. how free is the team to decide which teacher will carry out what activity or which teacher will be responsible for what group of students--if the latter is necessary?) N L M C T
32. What degree of task subdivision exists within the team? (e.g. do the teams include audio-visual specialists, teaching aides, clerical and laboratory assistants, etc.) N L M C T
33. To what extent are the responsibilities for decision making specialized within each team? (e.g. do the teams have such positions as team leader, senior teachers, teachers and student teachers?) N L M C T
34. How expert do you consider the various team members to be making the correct decisions? (e.g. to what extent are the team members 'expert'?) N L M C T
35. To what extent do the members of each team teach special subjects? (e.g. are the teachers on each team responsible for teaching specific subjects?) N L M C T

36. How much co-ordination of the individual activities of the team members is exercised by the principal (or by the team leader, if such a position exists?) N L M C T
37. To what extent is the curriculum offered by the team co-ordinated by the principal or team leader? N L M C T
38. To what degree is the authority (ability to direct and control behavior) of the principal (or of the team leader if formal authority is granted to the team leader) used to bring about co-ordinated behavior? N L M C T
39. To what extent are the members of each team specialists in various subject fields? N L M C T
40. To what degree are the actions and behaviors of the teaching teams co-ordinated by the fulfilling of roles that have been developed within the team itself? N L M C T
41. What degree of co-ordination is evidenced between the actions and behaviors of the teaching team(s) and the official curriculum for the subject within which the team is organized. N L M C T
42. What degree of co-ordination is evidenced among the team members in dealing with problems, either behavioral or learning, that are specific to each individual student? N L M C T
43. What degree of co-ordination is evidenced among the members of the teaching team in terms of teaching methods used when presenting the subject matter field to the students? N L M C T

PART THREE

The following section is designed to measure the principals' attitudes toward the role of teachers. There are five possible answers to each statement. They Are:

STRONGLY AGREE (SA) UNDECIDED (U) STRONGLY DISAGREE (SD)
 AGREE (A) DISAGREE (D)

For each statement circle the answer which indicates your attitude towards the statement.

44. It should be permissible for the teacher to violate a rule if it is felt that the best interest of the student will be served in doing so. SA A U D SD
45. Unless a teacher is satisfied that it is best for the student, a teacher should not do anything which a teacher is told to do. SA A U D SD
46. A good teacher should not do anything that may jeopardize the interests of the teacher's students regardless of who gives the directive or what the rule states. SA A U D SD
47. Teachers should try to live up to what they think are the standards of the profession even if the administration or the community does not seem to respect them. SA A U D SD
48. In view of the teacher shortage, it should be permissible to hire teachers with letters of authority. SA A U D SD
49. A teacher should try to put the standards and ideals of good teaching into practice even if the rules or procedures of the school discourage it. SA A U D SD
50. Teachers should subscribe to and read diligently the standard professional journals. SA A U D SD

- | | | |
|-----|--|---------------------|
| 51. | A teacher should be an active member of at least one specialist association. | SA A U D SD |
| 52. | A teacher should attend all local association meetings. | SA A U D SD |
| 53. | A teacher should consistently practice ideas of the best educational practices even though the administration prefers other views. | SA A U D SD |
| 54. | The major skill which a teacher should develop is an acquaintance with the subject matter. | SA A U D SD |
| 55. | Teachers should be evaluated primarily on the basis of their knowledge of the subject that they teach and on the basis of their ability to communicate it. | SA A U D SD |
| 56. | Schools should hire no one to teach unless the person holds at least a bachelor's degree in education. | SA A U D SD |
| 57. | One primary criterion of a good school should be the degree of respect that it commands from other teachers around the province. | SA A U D SD |
| 58. | Teachers should be able to make their own decisions about problems that come up in the classroom. | SA A U D SD |
| 59. | The ultimate authority over the major educational decisions should be exercised by qualified teachers. | SA A U D SD |

PART FOUR

The following section is designed to elicit principal attitudes towards innovation. Check one response for each question.

60. During the past six months have you told anyone about some new teaching practice or educational innovation?

YES _____ NO _____

61. Compared with your circle of friends in the teaching profession:
are you more (a) or are you less (b) likely to be asked for advice about new educational practices or innovations?

(a) _____ (b) _____

62. Thinking back to your last discussion about some new teaching practice or educational innovation, (a) were you asked for your opinion about the new practice or (b) did you ask someone else?

(a) _____ (b) _____

63. When you and your friends in the teaching profession discuss new ideas about teaching practices, what part do you play? (a) mainly listen, or (b) try to convince them of your ideas.

(a) _____ (b) _____

64. Which of these happens more often? (a) do you tell fellow principals about some new educational practice, or (b) do they tell you?

(a) _____ (b) _____

65. Do you have the feeling that you are generally regarded by your professional colleagues as a good source of advice about new educational practices?

YES _____ NO _____

66. Was the responsibility for getting the teachers in your school interested in team teaching (a) placed with you, or (b) did your superintendent do it?

(a)_____ (b)_____

67. Was your teaching and/or administrative position immediately prior to your present position:
(a) with the system with which you are now connected?
(b) with a different school system?

(a)_____ (b)_____

THANK YOU

- ## APPENDIX B

A TAXONOMY FOR TEAM TEACHING

A TAXONOMY FOR TEAM TEACHING*

- I. Structural requirements of specific situations
 - A. Gradedness
 - B. Departmentalization
 - C. Size of school
 - D. Resources:
 - 1. Financial
 - 2. Human
 - E. Goals and specific plans
- II. Autonomy or span of control within existing structural requirements
 - A. Pupils
 - 1. Degree of control over the use of a variety of types of groupings for a variety of purposes.
 - B. Teachers
 - 1. Degree of control over size and composition of team.
 - 2. Degree of control over time available for cooperation and coordination.
 - 3. Degree of control over use of available time.
 - 4. Degree of control over operation without external supervision.
 - 5. Degree of control over non-team activities of teachers.
 - C. Curriculum and methods
 - 1. Degree of control over establishing curriculum goals.
 - 2. Degree of control over choice of materials and methods.
 - 3. Degree of control over study and development of curriculum materials.
 - 4. Degree of control over allocation of finances and other resources of instruction.
 - D. Schedules
 - 1. Degree of control over group size and composition.
 - 2. Degree of control over frequency of grouping changes.
 - 3. Degree of control over time allocation.
 - 4. Degree of control over space allocation.
 - 5. Degree of control over teacher allocation.

III. Authority structure and degree of specialization

- A. Degree of vertical authority structure
 - 1. Degree of task subdivision
 - (a) Degree of differentiation in abilities among staff.
 - 2. Degree of hierarchy in administrative structure
 - (a) Degree of specialization of decision-making functions.
 - (b) Degree of expertise in decision-making.
- B. Degree of horizontal authority structure
 - 1. Degree of task specialization
 - (a) Degree of expertise in special task areas.

IV. Coordination

- A. Degree of procedural coordination or concern for the organization of the team as a social system.
 - 1. Degree of coordination concerned with behavior and relationship of individuals in terms of authority.
 - 2. Degree of coordination concerned with behavior and relationship of individuals in terms of roles.
- B. Degree of substantive coordination or concern for the task
 - 1. Degree of coordination concerned with curriculum.
 - 2. Degree of coordination concerned with pupils.
 - 3. Degree of coordination concerned with methods.

*Henry F. Olds, Jr., "A Taxonomy for Team Teaching." in J.T. Shaplin and H.F. Olds, Jr., (eds.) Team Teaching (New York: Harper and Row, 1964), pp. 104-105.

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